SWEETEN WITH TRINIDAD SUGAR.

W.I 15

PROCEEDINGS

OF THE

VOL. XXXVI] SEPT.-OCT. 1936 [PARTS 9 & 10

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Price: One Shilling to Non-Members. Members Free.

Edited by the Secretary.

BUY TRINIDAD COCOA.

EAT TRINIDAD GRAPE FRUIT.

EAT TRINIDAD SUGAR.

The Agricultural Society of Trinidad and Tobago.

(Founded 1894).

Office Address: No. 26, St. Vincent Street, Port-of-Spain.

The present Society was originally incorporated by Ordinance No. 9 of 1894; reconstituted by Ordinance No. 28 of 1906 and finally incorporated by Ordinance No. 1 of 1919 (Cap. 130 of the Revised Laws of the Colony).

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DRINK TRINIDAD GRAPE FRUIT JUICE.

TRINIDAD SUGAR IS BEST.

PUBLICATIONS OF THE SOCIETY.

(1) Pamphlet Series.

The following can be had at the office of the Society 26, St, Vincent Street, free to members and from 6d. to 1/- per copy to non-members :

—	Estate Forestry	Captain R. C. Marshall, Conservator of Forests, Trinidad and Tobago.
—	Witchbroom	Dr. Stahel (British Guiana).
263	Cacao Cultivation Reports on Shades	O. W. Barrett.
279	The West Indies and Canada	West India Committee
280	Cacao Pests of Trinidad Final Report	O. W. Barrett. Circular.
405	Library of the Agricultural Society 1st Jan., 1910. ..	Secretary.
422	Indentured Labour and Preventable Diseases ..	Dr. George H. Masson.
442	The Green Muscadine of Froghoppers	Mr. J. Birch Rorer, M.A.
467	Recent Addition to Insect Fauna in the West Indies	Dr. A. Fredholm.
480	International Agricultural Institute in Rome ..	T. H. Elliott.
*485	The Planters A.B.C. ..	By a Member.
486	Change of Leaf in Cacao ..	Mr. W. C. Jardine.
494	Remarks on the Cultivation of Yams	Rev. H. Morton.
499	Agricultural Education in Trinidad	Dr. A. Fredholm.
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505	The King of the Woods (Momotus Bahamensis) ..	Mr. A. B. Carr.
520	Further Note on the Caroni Series at Savaneta ..	R. J. Lechmere Guppy.
528	Rules and Regulations for District Agr. Societies ..	Affiliated with the Agricultural Society of Trinidad and Tobago.
529	Lessons from the Drought	Dr. A. Fredholm.
532	Agricultural Revolution by the New Cult	Harry Vincent (1912).

539	The Silk Industry ..	C. Glaudon.
540	Education No. Part I ..	Reprint from "Proceedings" of February, 1913.
548	Ticks	G. N. Walcott.
562	Higher Agricultural Education Part II ..	Adopted at a meeting of the Society.
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622	The Influence of War on Tropical Agriculture ..	Mr. W. G. Freeman, B.Sc.
632	Round Tobago	Report by Secretary submitted to the Society.
633	Rhinoceros Beetles ..	F. W. Urich.
634	Report on the Inoculation of Locusts in Cocobacillus Acridiortum	J. Birch Rorer.
660	Causes of Emigration from the Colony	E. Gransaull.
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676	Cacao Disease in Ecuador ..	Prof. A. N. Martinez.
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706	Co-Operation	F. D. Davies.
717	Possible Trade in Yams with Canada	Rev. H. Morton.

718	Report of the Fruit Committee	Mr. W. G. Freeman, B.Sc.
759	Contour Drains	Mr. F. D. Davies, Agricultural Adviser.
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777	The Treatment of Ankylostomiasis on the High Seas by the Intensive Method of Thymol Administration	Dr. George Masson.
	and Its Use	F. Stell.
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805	Hints to Stock Owners ..	Capt. H. V. Metivier, B.Sc., M.R.C.V.S.
806	An Accidental Discovery re Cassava Cultivation ..	Revd. C. D. Lalla.
808	Co-operation	S. M. Gilbert, B.Sc.
809	Witch-Broom Disease of Cacao—A Review of the Position	F. Stell.
810	Which are our most useful Timber Trees?	Capt. R. C. Marshall, M.A., (Oxon.).
811	Some Manurial and Cultivation Experiments on Sugar Cane in Trinidad 1927-32	P. E. Turner.
812	Some Aspects of the Manuring of Cocoa	J. A. McDonald (A.I.C.T.A.)
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814	Activated Composts ..	Professor R. Cecil Wood, M.A. Dip. Agr.

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819	Efficiency in the Cacao Field with Special Reference to Replacement of Poor Bearers	Dr. F. J. Pound.
820	Some Notes on the History of the Tonca Bean (Dipteryx Odorata) and its Cultivation in Trinidad	T. I. Potter, M.B.E., F.Z.S. (Lond).
822	Insect Pests of Trinidad Crops with some suggestions for their control	Mr. Alan Pickles, Govt. Entomologist.

* The publications marked thus * are out of print, and, therefore, no longer available for Sale.

For continuation of the Society's publications see page 357

Omitted from list of Society Papers:

821	Rearing Better Queen Bees for increasing Honey Production	E. A. Emond (Beekeeping Instructor).

Proceedings of the Agricultural Society

SEPTEMBER-OCTOBER.

Vol. XXXVI. Nos. 9 & 10

EDITOR'S NOTES AND CLIPPINGS.

SEPTEMBER-OCTOBER, 1936.

Subscriptions:—Members whose subscriptions are in arrears are reminded that September is the last month of the third quarter of the year, and that the Society has to spend a considerable sum of money on the preparations for holding the Livestock Exhibition, so we hope that you will be loyal and make some endeavour to liquidate your arrears with as little delay as possible.

Arrival of our New Governor. Sir Arthur George Murchison Fletcher, K.C.M.G., C.B.E.:—Our new Governor and Lady Fletcher arrived on Thursday morning, 17th inst. about 9.15 a.m. A great crowd assembled on King's Wharf to welcome them, and the Mayor, Aldermen, and City Councillors presented an address to the Governor. After their reception there, His Excellency and Lady Fletcher drove from the wharf to the Government Buildings, better known as the "Red House," and at 10 o'clock in the Legislative Council Chamber, the Colonial Secretary in the presence of the population, read the Royal Commission appointing Sir Arthur George Murchison Fletcher, K.C.M.G., C.B.E. to be Governor and Commander-in-Chief in and over the Colony of Trinidad and Tobago. The unofficial members of the Legislative Council and the representatives of the Chamber of Commerce also presented addresses of welcome, after which His Excellency replied to the addresses in which reply he made reference to the remark of the Chamber of Commerce recommending reduction of expenditure and compared this Colony to a high-powered motor car which required a large petrol bill to drive it

efficiently. He expressed himself as being favourable to the development of agriculture, sympathetic with the peasant and generally intended to further the successful development of the resources of the colony, and the progress and happiness of the people. The general opinion of those who heard him was that he had created a very good impression.

The weather in the City that morning was splendid, but, on the northern hills of St. Ann's there were lurking rain clouds, and after the swearing-in ceremony was over, and His Excellency and Lady Fletcher had left for their residence at St. Ann's, the clouds broke, and the new Governor and his lady were received there by a downpour of rain, which interfered considerably with the welcome prepared for them by the Girl Guides and Boy Scouts of Port-of-Spain, who had supplied a Guard of Honour for the Governor and Lady Fletcher.

After the heavy shower, His Excellency and Lady Fletcher inspected the Guard of Honour of Guides and Scouts who had re-assembled, and they marched past in front of the Governor and his lady, after which they were entertained by His Excellency and Lady Fletcher who thanked them for their welcome.

The Livestock Exhibition of 1936:—To be held under the direction of the Committee of Management of the Agricultural Society of Trinidad and Tobago in the Grand Stand, in the Queen's Park, on the 30th and 31st October, and 1st November, promises to be a great event in our agricultural history. The catalogues, entry cards and tickets for exhibits are now ready for distribution, and intending exhibitors will receive copies on application to the Secretary of the Society and Exhibition at No. 26 St. Vincent Street, Port-of-Spain (first floor of the building at the corner of St. Vincent and Queen Streets, opposite to the Private Boxes of the General Post Office).

Intending exhibitors are requested to read the rules supplied in the catalogue very carefully, and to follow the exact words in the catalogue in describing their exhibits. Particular attention is drawn also to the rule, which requires that all entries must be sent in to the Secretary not later *than 2 p.m. on Saturday, the 24th October.* Any information needed will be supplied to

exhibitors by the Secretary, if they make their requests early.

Through the kindness of the Inspector-General of Constabulary the Band will be present on the three days of the Exhibition, and will discourse the sweet music which the Bandmaster always provides at these functions.

On Friday, the 30th October, the Exhibition will be opened by His Excellency the Governor, who has very kindly accepted the Society's invitation to be our Honorary President. On that afternoon, the T.S.P.C.A., will hold their Annual Show in the Amusement Park enclosed in front of the Stand. In the Catalogue will he found a list of the competitions offered by the T.S.P.C.A. There will be an exhibition of domestic cats under the Stand, on that afternoon also.

On the following Saturday, 31st October, there will be a Gymkhana, starting from 2 p.m., and lasting the whole afternoon, at the close of which the Mounted Constabulary will perform a Musical Ride to the music provided by the Constabulary Band. The events of the Gymkhana will be found in the Catalogue.

On Sunday, the last day, the Constabulary Band will give its weekly programme of music in the grounds of the Exhibition, instead of at the Royal Botanic Gardens, and the programme for the three days will be printed in the catalogue. The catalogues will be given free of charge to intending exhibitors, but will be sold to the general public at sixpense per copy.

The prices of admission to the Exhibition are given in the Catalogue and there will be a reduction of the fee for admission to school children under the control of a teacher. On the last day (Sunday) the entrance fee will be sixpence for adults and threepence for children.

An extra charge will be made for admission to see the Gymkhana and the Musical Ride from the Grand Stand, where chairs will be provided for spectators.

The Exhibition will be open daily from 1 p.m. to 10 p.m., and, after sunset, the grounds and buildings will be brilliantly illuminated.

At 5 p.m. on the second day, there will be an Auction Sale of Stock, to which all persons desirous of getting bargains are invited to attend, already about 90 persons

have signified their intention of sending in exhibits, and approximately 524 have been promised.

As stated above, this Show promises to be a splendid one, so don't miss it.

Buy a catalogue and read all about it.

A Paper by Mr. Alan Pickles on Insect Pests of Trinidad with some Notes for their Control:—At the General Meeting of Thursday, the 10th September, Mr. Alan Pickles, the Government Entomologist, gave the members a most useful, interesting and instructive paper on Insect Pests in this Island, and added some very useful and effective recipes for controlling these pests, The paper was listened to with great attention, and it was much appreciated.

It will be published in this issue of the "Proceedings," and in pamphlet form also, for distribution to members, and for sale at 1/- per copy to the general public.

United Kingdom's Honey Crop. Extract from West India Committee Circular of August 13th, 1936:—The Honey Producers' Association, as the outcome of inquiries made in various districts of the United Kingdom, reports that, so far as can be estimated at present, this year's crop may be only about 20 to 25 per cent. of the normal.

In some areas, the dull, rainy weather has caused the 1936 season to be one of the worst ever known. Other areas, e.g. those where honey heather is obtained, are still hopeful of a good crop, provided the weather takes a decided turn for the better.

In the event of the home supplies being much below the average there should be an improved demand for imported honey. "Food Industries Weekly" notes that Empire honey is making headway in the British market against foreign competitors, supplying in 1935 45,646 cwt. out a total of 64,029 cwt. Jamaica is the principal source of the home supplies, and every care should be taken to send honey fully up to the requirements of the market.

Note:—This should be a stimulant for our local bee-keepers to rise to the occasion.—Editor.

Extract from the "United Empire," September, 1936—"The Oldest Living Thing on Earth.":—Queens-

land claims to have the oldest living thing on earth. It is a macrozamia,* a tree about 20 feet in height and estimated to be more than 12,000 years old. In the Tamborine Mountain reserve, there is a whole grove of macrozamia, the youngest of them being 3 feet in height and 3,000 years old. When Professor Chamberlain, of Chicago University, was appointed to collect data concerning macrozamias in various parts of the world, he travelled all over the globe, and the largest specimen he had seen prior to coming to Queensland was between six and seven feet in height, and was found in South Africa. He was amazed, therefore, when he found in the Tamborine Mountain reserve a whole grove of macrozamia which measured over 20 feet in height, and whose ages he estimated to between 12,000 and 15,000 years.

The largest macrozamia which Professor Chamberlain had ever seen, and weighing 85 lbs., as against the South African record of 35 lb., contained 151 seeds, and these were sent to America. One seed was planted in each of America's 151 national parks.

Livestock Exhibition, 1936:—The Livestock Exhibition of the Society which has now been fixed for the two last days of October and the first of November promises to be a very popular event, and should draw a very large number of visitors. Many of the exhibits represent the finest livestock in the Colony, and it is the object of the Society to hold a similar Exhibition annually, if the public indicate by their support and patronage on this occasion that they are desirous of a continuation of this effort to improve our livestock.

At present, when the question of a proper meat supply is being dealt with in the local press, the effort of the Agricultural Society of the Colony to encourage the improvement of our livestock should be strongly supported.

*Macrozamia is a member of *Cycadaceae* and resembles a "Sago Palm" in appearance. (Ed.)

[COPY.]

Trinidad.

No. 420.

Downing Street,
19th August, 1936.

Sir,

I have the honour to inform you that a Trade Agreement recently concluded between the United States of America and France provides for reductions, as indicated below, in the duties on the following commodities imported into the former country from France or French possessions:—

Essential or distilled oils, other than citrus oils and peppermint oil.	Reduction from 25% to 12½% ad valorem.
Cordials and Liqueurs	Reduction from $5 to $2.50 per proof gallon.

2. The Agreement came into force, provisionally, on the 15th of June and, in accordance with the usual practice of the United States Goverment, the concessions granted to France are extended to the United Kingdom and the Colonies generally, as well as to most other countries.

I have the honour to be,

Sir,

Your most obedient, humble Servant,

(Signed) W. ORMSBY GORE.

The Officer administering
the Government of
Trinidad.

TRINIDAD

Monthly Produce Report and Statistics

PORT-OF-SPAIN, 31st AUGUST, 1936.

(Compiled by the Secretary of the Agricultural Society).

COCOA:—Prices for all grades remained the same as they were in July up to the 12th August, viz: $11.50 for Plantation marks, $11.20 for Mixed Estates, and $11.00 per fanega for Ordinary kinds. After this date there was a downward tendency, and from the 14th August, there was a general decline of 10¢ per fanega in all grades until the 21st October, when there was another drop when the quotations for the various grades were as follows:—Plantation $11.30, Mixed Estate $10.80, and Ordinary $10.75 per fanega of 110 lbs., and at the end of the month "Plantation" marks had fallen to $10.20 per fanega of 110 lbs., while "Mixed Estates" and "Ordinary" had remained at $10.80 and$10.75 per fanega.

The trees give promise that the next crop will be a good one, but the favourable wet weather also promotes the extension of witchbroom. It is hoped that although there has been a steady decline of prices this month, the prices at Christmas time will show a marked improvement.

SUGAR:—As stated in our notes of last month, the sugar crop of this year was the best on record, and the Ste. Madeleine Sugar Company has gone far beyond its highest record. The result of this has been that 13,318 East Indians and 6,153 West Indian cane farmers have divided between themselves the handsome sum of $1,568,624.00.

Yet we regret to say that there are some of the cane farmers, who were like Oliver Twist clamouring for more!

The young canes of the coming crop are flourishing under the influence of the fine "growing weather," and it is to be hoped that Mr. Frog Hopper will keep a respectful distance this year.

COCONUTS AND COPRA:—The prices of nuts are improving and are now quoted at $12.50 for Selects, and $8.00 for Culls per thousand. Copra is steady at $2.95 per 100 lbs. and shows a tendency to increase.

COCONUT OIL:—Prices have not changed. They are still @ 50¢ to 55¢ per Imperial gallon.

COFFEE:—Is also unchanged at 6¼¢ to 6½¢ per lb. for Arabica; and 4¼¢ to 4½¢ per lb. for Robusta.

TONCA BEANS:—The prices for the native product, as well as for the Venezuelan bean has been from $1.50 to $1.55 per lb. during the month.

CITRUS FRUIT:—Grape fruit in bulk are being sold at from 70¢ to $1.50 per hundred, and Oranges fetch the same price in bulk.
Limes are quoted at 70¢ per 160 lbs. in bulk for "ordinary" and $1.60 for handpicked at $1.60 per barrel of 160 lbs. selected fruit.

HONEY:—Honey was quoted throughout the month at 2¾¢ per lb.

WEATHER:—The month's weather was seasonable, and there were several very warm days without rain, but the weather, generally speaking, was very suitable to agriculture.

Name of Produce	Unit of Weight or of Measure	EXPORTED IN 1936			PRODUCE EXPORTED TO SAME DATE IN THE YEARS									
		Exported in August	Exported from Jan. to July	Total Exported from Jan. to August	1935	1934	1933	1932	1931	1930	1929	1928	1927	1926
Cocoa	lbs	614,952	21,395,974	22,010,926	38,633,672	20,200,992	41,858,856	31,987,061	50,562,319	42,771,278	50,042,006	49,125,919	41,575,318	44,939,614
Foreign Cocoa	lbs.	747,150	6,232,024	6,979,174	6,772,582	8,179,798	5,644,178	6,202,949	5,697,599	7,788,251	8,019,947	5,874,791	4.461,860	--
Sugar	lbs.	15,434,944	303237648	318672592	234655793	197855730	231294882	182446264	191213540	153065043	180456466	162750013	89,514,525	136806872
Molasses	galls	6,425	3,176,664	3,183,089	2,435,889	2,034,081	2,334,327	1,698,401	1,386,174	326,190	783,621	1,002.122	976,040	796,476
Rum	galls	190	86,182	86,372	4,678	13,533	50,603	77,010	232	41,356	40,416	36,690	35,339	53,437
Bitters	liquid galls.	610	3,792	4,402	7,965	13,191	7,673	6,384	10,998	17,845	42,547	33,077	33,954	30,526
Coconuts	No.	391,075	2,141,225	2,532,300	2,844,670	5,024,209	3,765,270	2,502,275	2,265.095	4,406,642	7,742,985	4,051,310	3,270,505	2,841,281
Copra	lbs.	302,400	6,175,200	6,477,600	7,664,766	12,379,254	12,555,500	7,901,266	12,933,054	15,996,417	16,302,333	13,869,571	7,535,508	10,097,618
Coconut Oil	galls	40	8,382	8,422	10,302	24,134	33,911	11,870	19,077	28,356	21,530	47,088	44,101	54,128
Coffee	lbs.	113,570	601.307	714,877	880,431	392,654	252,236	563,062	657,367	136,234	716,093	39,588	137,781	367,433
Fruit — Oranges — Crates	No.	Nil	2,004½	2,004½	2,501½	233	53	1,135	398	14	--	-	—	—
Fruit — Oranges — Bulk	No.	11,800	1,985,632	1,997,432	3,021,976	1,364,741	358,017	2,205,401	2,080,712	1,435,658	881,974	—	—	—
Fruit — Grape Fruit — Crates	No.	Nil	36,743¾	36,743¾	46,470½	3,629	2,266	9,770	4,174	493	—	—	—	—
Fruit — Grape Fruit — Bulk	No.	Nil	15,298	15,298	16,752	984,670	450	210	494	117,134	55,634	—	—	—
Limes	bar'ls.	276	884½	1,160½	507	1,316	1,868½	87	—	—	—	—	—	—
Lime Juice — conc.	galls.	Nil	1,121	1,121	4,422	4,968	9,059	8,583	3,890	—	—	—	—	—
Lime Juice — raw	gals.	6,538	23,264	29,802	1,862	1,847	6,347	25,808	16,131	—	—	—	—	—
Lime Oil — distilled	lbs.	1,866	12,331	14,197	7,959	1,339	983	382	—	—	—	—	—	—
Lime Oil — hand pressed	lbs.	89	690	779	568	40	64	106	—	—	—	—	—	—
Grapefruit Juice	galls.	1,825	8,261	10,086	3,992	13,690	—	—	—	—	—	—	—	—
Honey	lbs.	Nil	35,008	35,008	30,397	35,573	—	—	—	—	—	—	—	—
Rubber (Raw)	lbs.	19,487	37,393	56,880	80,841	—	—	—	—	—	—	—	—	—
Bananas	b'hes	21,524	86,038	107,562	36,963	29,790	251	—	—	—	—	—	—	—
Mineral Oil — Crude	galls.	2,128,490	7,140,581	9,269,071	7,576,447	11,681,718	32,788,483	66,466,890	64,378,729	17,282,031	23,706,993	13,511,509	8,565,294	5,470,098
Mineral Oil — Gasolene	galls.	11,924,133	62,105,584	74,029,717	62,143,512	56,370,314	48,817,630	46,270,179	40,547,290	34,129,677	30,713,204	24,745,909	17,732,312	10,745,423
Mineral Oil — Kerosene	galls.	616,733	2,993,176	3,609,909	3,282,358	1,637,977	2,146,055	1,336,740	940,599	970,229	1,539,626	372,230	492,924	522,404
Mineral Oil — Fuel	galls	29,940,717	165939115	195879832	180543694	165567474	131021650	122627575	101119890	117519121	144010264	99,571,757	73,049,538	73,619,934
Mineral Oil — Lubricating	galls	184	1,709	1,893	3,160	2,924	4,350	7,967	8,556	106,107	31,076	39,559	1,468	1,834
Mineral Oil — Road	galls.	81,626	526,957	608,583	554,651	606,969	293,980	218,996	272,029	113,711	127,639	125,291	70,244	35,075
Total Min. Oil	galls	44,691,883	238707122	283399005	254103822	235867376	215072148	236928347	207267093	170120876	200128802	138366255	99,911,780	90,394,768
Asphalt — Crude	Tons	Nil	4,125	4,125	4,237	2	—	—	—	—	—	—	—	—
Asphalt — Dried	Tons	2,868	33,367	36,235	49,928	34,481	28,530	30,908	66,017	88,658	113,369	108,442	136,124	117,147
Asphalt — Cement*	Tons	564	7,845	8,409	5,206	3,593	4,358	6,503	—	—	—	—	—	—

Name of Produce	QUOTATIONS IN AUGUST OF EACH YEAR									
	1936	1935	1934	1933	1932	1931	1930	1929	1928	1927	1926
Cocoa	Lond. 64/- 68/- per cwt.	Lond. 43/- per cwt.	Lond. 38/- 47/- per cwt.	Lond. 36/- 46/- per cwt.	Lond. 40/- 54/- per cwt.	Lond. 38/- 50/- per cwt.	55/-62/- 9⅞c.	53/- 54/- 11⅛c.	65/-72/- 13¼c.	82/- 84/- 15¾c.	72/- 73/- 11¾c.
Foreign Cocoa	N.Y. 6½-6⅞ per lb.	N.Y. 4⅛c per lb.	N. Y. 4¼c. per lb.	N.Y. 6¼c. per lb.	N.Y 5¼c. per lb.	N.Y. 7c. per lb.					
Sugar	*Lond. C.I.F. 8/3	Lond. 8/1½ per cwt.	Lond. C.I.F. 8/5¼ per cwt.	Lond. C.I.F. 9/10 per cwt.	Lond. C.I.F. 11/2¼	Lond. C.I.F. 9/10½ per cwt.	9/8½ 20/1½	11/6 15/-	15/4 24/-	17 - 29/-34/-	— —
Molasses	**16/-8/3 per cwt.	**16/6-18/9 per cwt.	**17/10½ per cwt.	**18/7½ ner cwt.	**19/2½ per cwt.	**19/1½ per cwt.					
Rum	40 O.P.3/4 per liquid gall. (no quotation)	40 O.P. 3/4 per liquid gall.	40 O.P. 3/- per proof gall.	40 O.P. 3/- per proof gal.	40 O.P. 3/- per proof gall.	40 O.P. 3/- per proof gall					
Bitters											
Coconuts	N.Y. $31.00 Per 1,000 c.i.f. duty paid	N.Y. $21.00 Per 1,000 c.i.f. duty paid	N.Y. $30.00 Per 1,000	N.Y. $30.00 Per 1,000	N.Y. $30.00 Per 1,000	N.Y. $27 50 Per 1,000					
Copra	London £15 0. 0. Per Ton c.i.f.	London £11 2. 6 Per Ton c.i.f.	N.Y. C I F. $1.65 Per 100 lbs. London £9 9. 0 Per Ton.	N.Y. C.I.F. $1.97½ per 100 lbs London £11 13. 6 Per Ton	N.Y. C.I.F. $2.12 per 100 lbs. London £14 13. 2 Per Ton	N.Y. C.I.F. $3.10 per 100 lbs. London £12 5. 0. Per Ton					
Coconut Oil											
Coffee											
Fruit — Oranges — Crates											
Fruit — Oranges — Bulk											
Fruit — Grape Fruit — Crates											
Fruit — Grape Fruit — Bulk											
Limes											
Lime Juice — conc.	Conc. £7 (nominal) Raw 2/- to 2/6 per gall.	Conc. £4 15. per 108 galls. Raw 2/- to 2/6 per gall.	Conc. £4 10. per 108 galls. Raw 2/3 per gall.	Conc. £4 10. per 108 Galls Raw 1/9 per gall.	Conc. £5 per 108 galls Raw 1/9 per gall.	Con. £4 per 108 galls Raw 2/- per gall.					
Lime Juice — raw											
Lime Oil — distilled											
Lime Oil — hand pressed											
Grapefruit Juice											
Honey											
Rubber (Raw)											
Bananas											
Mineral Oil — Crude											
Mineral Oil — Gasolene											
Mineral Oil — Kerosene											
Mineral Oil — Fuel											
Mineral Oil — Lubricating											
Mineral Oil — Road											
Total Min. Oil											
Asphalt — Crude											
Asphalt — Dried											
Asphalt — Cement*											

*Asphalt Cement being comparatively recently a local manufacture was not exported prior to 1932.

* Preferential
**W. I. Crystallised

TRINIDAD

Monthly Produce Report and Statistics

PORT-OF-SPAIN, 30th SEPTEMBER, 1936.

(Compiled by the Secretary of the Agricultural Society).

COCOA:—The market for all qualities of cocoa showed an increase during the month, and prices rose steadily. In the first week the quotations were:—"Plantation" marks $11.50; "Mixed" $10.80 and "Ordinary" $10.75 per fanega. On the 17th they were $11.90—$12.00 for "Plantation"; $11.85 for "Mixed" and $11.50 per fanega for "Ordinary"; and at the end of the month, the quotations were $12.50 for "Plantation" marks; $12.00 to $12.10 for "Mixed" Estates, and $11.65 to $11.70 per fanega, for "Ordinary." The new crop is expected to start early in November next.

COCONUTS—Selects were quoted at $13.00 and $14.00 per 1.000 at the end of the month, indicating a rise on the original quotation of $12.00. Culls showed no improvement from previous quotations.

COPRA:—This product indicated a steady rise from $2.95 to $3.25 during the month.

COCONUT OIL:—Prices for this product were unchanged at 50¢ to 55¢ per gallon.

COFFEE:—Prices unchanged at 6¼ to 6½¢ per lb. for "Arabica," and 4¼ to 4½¢ for "Robusta."

TONCA BEANS:—Steady throughout the month @ $1.30—$1.55 per lb.

LIMES:—Ordinary, 60¢ per barrel of 160 lbs. Handpicked $2.40 per barrel of 160 lbs.

WEATHER:—The weather of the month was normal, and eminently favourable to agriculture.

Name of Produce	Unit of Weight or of Measure	EXPORTED IN 1936			PRODUCE EXPORTED TO SAME DATE IN THE YEARS										QUOTATIONS IN SEPTEMBER OF EACH YEAR									
		Exported in September	Exported from Jan. to Aug.	Total Exported from Jan. to September	1935	1934	1933	1932	1931	1930	1929	1928	1927	1926	1936	1935	1934	1933	1932	1931	1930	1929	1928	1927	1926
Cocoa	lbs.	1,141,228	22,010,926	23,152,154	40,342,656	21,299,413	43,554,934	34,706,014	52,274,652	44,417,360	51,716,938	51,181,782	42,942,936	46,215,290	Lond. 61/- 68/- per cwt.	Lond. 37/6 43/- per cwt.	Lond. 38/- 47/- per cwt.	Lond. 36/- 46/- per cwt.	Lond. 40/- 53/- per cwt.	Lond. 39/- 50/- per cwt.	55/- 9c.	54/- 11½c.	62/- 12⅝c.	82/- 15¾c.	72/- 14c.
Foreign Cocoa	lbs.	1,152,873	6,979,174	8,132,047	7,358,374	8,798,200	6,221,374	6,717,689	6,194,465	8,294,429	8,693,141	6,540,842	5,144,300	—	N.Y. 7¼-7 1/16c. per lb.	N.Y. 5⅛c. per lb.	N.Y. 5⅜c. per lb.	N.Y. 6¼c. per lb.	N.Y 6c. per lb.	N.Y. 7c. per lb.					
Sugar	lbs.	3,360	318672592	318675952	236447681	199921256	239211290	186876557	191456430	153838616	180849997	163269955	91,482,635	145331790	*Lond. C.I.F. 8/- per cwt.	Lond. 8/- per cwt.	Lond. C.I.F. 8/3¼ per cwt.	Lond. C.I.F. 10/0¾ per cwt.	Lond. C.I.F 10/8	Lond. C.I.F. 9/10½ per cwt.	9/4½	11/6	13/3	15/6	—
																			**18/11¾ per cwt.	**18/10½ per cwt.	18/11	15/-	16/6	29/-	—
Molasses	galls	680,810	3,183,089	3,863,899	2,460,714	2,034,081	2,338,502	1,698,401	1,386,461	326,190	785,850	1,004,853	988,340	807,838	**15/9-18/6 per cwt.	**16/6-18/6 per cwt.	**17/8 per cwt.	**19/1½ per cwt.							
Rum	galls	1,237	86,372	87,609	5,186	13,777	50,762	92,363	37,285	51,807	50,761	43,235	35,470	53,525	40 O.P. 3/4 per liquid gall.	40 O.P. 3/4 per liquid gall.	40 O.P. 3/- per proof gall.	40 O.P. 3/- per proof gall.	40 O.P. 3/- per proof gall.	40 O.P. 3/- per proof gall.					
Bitters	liquid galls.	854	4,402	5,256	10,822	14,517	8,859	6,813	11,901	18,765	44,030	35,940	39,073	35,074	(no quotation)										
Coconuts	No.	629,220	2,532,300	3,161,520	3,739,110	5,822,039	4,358,450	2,612,275	2,597,515	4,727,042	8,941,065	4,459,150	4,117,600	3,271,271	N.Y. $31.50 Per 1,000 c.i.f. duty paid	N.Y. $23.00 Per 1,000 c.i.f. duty paid	N.Y. $30.00 Per 1,000	N.Y. $30.00 Per 1,000	N.Y. $30.00 Per 1,000	N.Y. $27.50 Per 1,000					
Copra	lbs.	521,024	6,477,600	6,998,624	7,664,766	14,360,440	13,507,400	9,024,106	14,134,394	17,326,626	18,176,938	14,516,449	8,658,511	11,522,485	London £15 5. 0. to £15 10. 0. Per Ton c.i.f.	London £11 10/- Per Ton c.i.f.	N.Y. C.I.F. $1.65 Per 100 lbs. London £9 8. 3. Per Ton.	N.Y. C.I.F. $1.97 per 100 lbs London £10 13. 3 Per Ton	N.Y. C.I.F. $2.15 per 100 lbs. London £15 0. 0 Per Ton	N.Y. C.I.F. $3.10 per 100 lbs. London £12 1. 8. Per Ton					
Coconut Oil	galls	90	8,422	8,512	11,143	28,540	38,646	11,870	19,466	31,624	22,842	48,417	47,382	64,768											
Coffee	lbs.	57,510	714,877	772,387	955,881	416,834	263,196	653,062	665,447	213,584	724,693	70,688	138,080	390,903											
Fruit: Oranges	Crates No.	Nil	2,004½	2,004½	2,507½	233	89	1,135	398		—	—	—	—											
	Bulk No.	102,350	1,997,432	2,099,782	3,074,076	1,554,455	470,557	2,242,791	2,086,712	1,456,802	884,074	—	—	—											
Fruit: Grape Fruit	Crates No.	Nil	36,743¾	36,743¾	46,510½	3,629	2,266	9,770	4,174	493	—	—	—	—											
	Bulk No.	Nil	15,298	15,298	16,752	986,182	450	210	494	117,134	55,634	—	—	—											
Limes	bar'ls.	207	1,160½	1,367½	555	1,353	1,952½	180	—	—	—	—	—	—											
Lime Juice: conc.	galls.	Nil	1,121	1,121	4,422	4,968	10,247	8,583	3,890	—	—	—	—	—											
Lime Juice: raw	galls.	Nil	29,802	29,802	2,126	1,890	6,847	36,742	16,386	—	—	—	—	—	Conc. £7 (nominal) Raw 2/- to 2/6 per gall.	Conc. £4 15. per 108 galls. Raw 2/- to 2/6 per gall.	Conc. £4 15 per 108 galls. Raw 2/3 per gall.	Conc. £4 10. per 108 Galls Raw 1/9 per gall.	Conc. £5 per 108 galls Raw 1/9 per gall.	Con. £4 per 108 galls Raw 2/- per gall.					
Lime Oil: distilled	lbs.	4,817	14,197	19,014	8,747	1,709	1,112	477	—	—	—	—	—	—											
Lime Oil: hand pressed	lbs.	Nil	779	779	568	40	64	106	—	—	—	—	—	—											
Grapefruit Juice	galls.	43	10,086	10,129	3,992	14,230	—	—	—	—	—	—	—	—											
Honey	lbs.	3,170	35,008	38,178	36,139	35,573	—	—	—	—	—	—	—	—											
Rubber (Raw)	lbs.	23,526	56,880	80,406	99,418	—	—	—	—	—	—	—	—	—											
Bananas	b'hes	15,031	107,562	122,593	43,957	33,660	714	—	—	—	—	—	—	—											
Mineral Oil: Crude	galls.	1,106,665	9,269,071	10,375,736	6,617,102	11,681,718	34,659,639	70,027,651	74,520,569	19,730,848	27,204,554	16,163,793	8,566,894	6,471,378											
Mineral Oil: Gasolene	galls.	7,705,851	74,029.717	81,735.568	71,269,794	65,593,487	56,517,402	48,935,119	46,393.281	42,126,220	33,956,937	29,280,983	20,308,192	13,303,645											
Mineral Oil: Kerosene	galls.	398,853	3,609,909	4,008.762	3,482.106	1,834,498	2,316,952	1,454,454	1,051,595	1,027,288	1,627,655	402,749	1,134,212	616,296											
Mineral Oil: Fuel	galls	23,670,278	195879832	219550110	205100130	181920941	144238344	140130500	112776237	131827939	161988474	110728578	86,548,316	79,630,909											
Mineral Oil: Lubricating	galls	702	1,893	2,595	3,564	3,168	6,692	8,461	8,556	106,177	31,076	39,559	1,492	2,982											
Mineral Oil: Road	galls.	48,083	608,583	656,666	615,635	647,088	321,209	234,602	320,383	154,225	143,619	129,984	77,986	38,703											
Total Min. Oil	galls	32,930,432	283399005	316329437	287088331	261680900	238060238	260790787	235070621	194982697	224952315	156745646	116637092	100063913											
Asphalt: Crude	Tons	1,100	4,125	5,225	4,237	5	—	32,701	71,346	98,503	130,485	121,215	147,613	135,812											
Asphalt: Dried	Tons	3,300	36,235	39,535	52,460	36,401	32,557																		
Asphalt: Cement*	Tons	975	8,409	9,384	5,330	4,773	5,158	6,769	—	—	—	—	—	—											

*Asphalt Cement being comparatively recently a local manufacture was not exported prior to 1932.

* Preferential
** W. I. Crystallised

MINUTES OF THE MONTHLY GENERAL MEETING.

Minutes of the Monthly General Meeting of the Agricultural Society of Trinidad and Tobago held in the Meeting Room of the Society, at No. 26, St. Vincent Street, Port-of-Spain, on Thursday, 13th August, 1936, at 1.30 p.m.

1. **Present**:—Mr. E. Vernon Wharton, President (in the Chair), Hon. E. J. Wortley, C.M.G., O.B.E. (Director of Agriculture), Mr. A. Killick (Assistant Director of Agriculture), Mr. Geo. F. Huggins, O.B.E., Dr. Mason, Messrs. J. de Verteuil, M. Martinez, H. Fahey, T. Boyd, E. Pritchett, H. Huggins, L. Gibbon, G. McCarthy, J. Leotaud, Em. Lucky, C. Carmona, A. Greig, J. Poyer,, E. Emond, W. Freakley, S. Liddelow, C. C. Skeete, (Assistant Commissioner of Agriculture, B.W.I.), G. Wyatt, Miss N. Hamel-Smith, Messrs. Carl de Verteuil, G. de Pompignan, B. L. Hart (delegate of the San Juan-Sta. Cruz Society), W. C. Sookermany (delegate Siparia-Erin District Society), F. M. Bain (Visitor) and Thomas I. Potter, M.B.E., Secretary.

2. **Vote of Condolence**:—Before starting the business of the afternoon, the Chairman moved a vote of condolence and sympathy to Mr. C. A. Milne-Home who had lost his mother recently, which was passed by the members standing for a minute in the usual way.

3. **Minutes**:—The Minutes of the last meeting having been printed and previously circulated to members were confirmed.

4. **Election of an Ordinary Member**:—Mr. Pierre Lange, a planter, proposed by Mr. T. I. Potter and seconded by Mr. Geo. F. Huggins was unanimously elected to be a subscribing or ordinary member of the Society.

5. **Resolution of Mr. Geo. F. Huggins, O.B.E.**:—The Chairman after a brief introduction then called upon Mr. Geo. Huggins. O.B.E., for the resolution which stood in his name on the agenda which was as follows:—

> "That it is the considered view of this Society "that the export of Tonca Bean seeds for pro- "pagation in other places must result in com- "petition with the producers of this Colony, and

"it recommends that only cured Tonca Bean "be exported."

Mr. Huggins exhorted planters and the Government not to allow Tonca Beans in the uncured state to be exported from this colony for planting. He emphasised the risk Trinidad planters ran, were this practice continued and strongly recommended the restriction of the Exportation.

Mr. L. Gibbon seconded the resolution, which was adopted unanimously.

Mr. G. C. Wyatt joined the meeting at this stage.

6. **Resolution of Mr. Carlos Carmona** asking that the Director of Agriculture be requested to send a thoroughbred Bull to Arima District for service.

The Chairman called on Mr. Carmona to move the resolution standing in his name on the Agenda, which he did in a few words, explaining that the improvement in milk producing cattle was needed.

Mr. Lucky asked whether this resolution could be extended to other districts. The Chairman said, the resolution applied to Arima, but as it was to be forwarded to the Director of Agriculture he would no doubt apply it to a wider field. Mr. Emond seconded the resolution which was carried unanimously.

7. **Mr. A. Killick's Notes on "Coffee Robusta"**:—The Chairman introduced Mr. A. Killick the new Assistant Director of Agriculture to the meeting and asked him to read his paper.

Mr. Killick read a very interesting and instructive set of notes on the cultivation and marketing of Robusta Coffee in East Africa and his experience of it here.

After reading the paper, the members asked Mr. Killick several questions as to marketing Robusta Coffee, which he answered.

The Chairman moved a vote of thanks to Mr. Killick which was given with acclamation. A copy of Mr. Killick's paper will appear in the August "Proceedings."

8. **Any Other Business**:—The Chairman drew the attention of the members present to the recent additions to the Society's Library which comprised Reference and Text Books on Agricultural subjects, which were laid on the table, and a list of which will be published in this

month's "Proceedings," together with the Rules governing the use of all the books in the Library by the members of the Society.

There being no further business the Chairman adjourned the meeting at 3.30 p.m. to the next regular day.

THOMAS I. POTTER,
Secretary.

Confirmed:
E. VERNON WHARTON.
Chairman.

MINUTES OF THE MONTHLY GENERAL MEETING.

Minutes of the General Monthly Meeting of the Agricultural Society, held in the meeting room of the Society in No. 26, St. Vincent Street, Port-of-Spain, on Thursday, the 10th September, 1936, at 1.30 p.m.

1. **Present:**—Mr. E. Vernon Wharton, President, in the Chair, Hon. A. B. Carr, O.B.E. (Hon. Vice-President), Messrs. A. B. Killick (Assistant Director of Agriculture), W. D. Lambie (British Trade Commissioner), Miss N. Hamel-Smith, Messrs. C. Carmona, G. C. Wyatt, A. A. Sobrian, E. Herrera, S. Liddelow, Lyndsay Grant, A. R. Freakley, J. C. Poyer, C. Bruce, Austin, Jos. de Verteuil, E. Lucky, E. Emond, J. Leotaud, L. Ragbir (delegate from Ortoire), C. Julumsingh (delegate from Tacarigua Society), J. C. Anthony (President, San Juan-Sta. Cruz Agricultural Society), W. C. Sookermany (delegate from Siparia-Erin Society), E. Gerold, H. L. Huggins, R. O'Connor, Mr. Alan Pickles (Govt. Entomologist), and the Secretary, (Mr. Thomas I. Potter, M.B.E.)

Mr. Killick mentioned that the Hon. E. J. Wortley was unavoidably absent.

2. **Minutes:**—The Minutes of the last meeting which had been printed and circulated to members, were taken as read and confirmed.

3. **Correspondence:**—The correspondence received since the last meeting and set out in the Agenda was laid on the table by the Secretary. The Chairman referred to the letter of the Director of Agriculture in reply to Mr. Carmona's resolution at the last meeting asking that a bull from the Government Farm be sent to Arima for service, and complimented Mr. Carmona on his action, expressing, at the same time, the wish that his good example might be followed by other members in similar or other cases.

4. **Mr. Alan Pickles Lecture on "Some Insect Pests of Trinidad with notes on Controlling them:**—The Chairman introduced Mr. Pickles to his audience, and said that he was the Government Entomologist, who had very kindly come to them that afternoon to tell the members about some of our troublesome insect pests, and to give us some notes of how to get rid of and to control them.

Mr. Pickles, in opening his paper, expressed his pleasure in having got the opportunity to address the members on the subject, and gave praise to Professor F. W. Urich, for his useful work in the past on the harmful insects of the colony, from whose publications he had received much assistance.

Mr. Pickles then proceeded to deal with thrips, scale insects, "pegon" bees, rust mites in citrus, and many other well known injurious insects, and, at the end of his lecture, gave recipes for destroying or controlling all of the harmful insects of the colony. A very interesting discussion followed and many questions were asked and answered.

His paper will be published in the Society's "Proceedings" and as a pamphlet which will be available to members, and for sale to the general public.

Mr. Pickles was thanked by the Chairman for his most interesting useful and informative lecture. The Chairman also moved a very hearty vote of thanks to the lecturer, which was most cordially given.

Mr. Pickles returned thanks, and the Chairman adjourned the meeting to the next regular date.

THOMAS I. POTTER,
Secretary.

Confirmed:

E. VERNON WHARTON,
Chairman.

REPORT OF DISTRICT AGRICULTURAL SOCIETIES.

NAPARIMA.

The regular monthly meeting of the Naparima District Agricultural Society was held in the Town Hall, San Fernando, on Monday, 20th July, 1936, at 4.30 p.m.

1. **Present**:—Mr. A. H. Dasent in the chair; Messrs. J. C. Augustus, E. Wyckham, J. Rodriguez, A. A. C. Yelloly, L. Darmanie, G. R. Richards, C. O. Allen, F. G. Maughan, R. M.. Scott, Geo. Mahabir, P. Chandroo, E. Lucky, C. S. Sanowar, F. C. Prevatt, E. Patrick, F. Patrick, F. Aaron, C. Fitzpatrick, J. Herdle, F. J. Kelly, Rev. C. G. Errey, Rev. Fr. Maingot, Mesdames Sinkia, and Mitchell, Miss E. Yelloly, and Turton, and J. H. Partap, Secretary.

2. **Congratulation**:—Mr. G. R. Richards was congratulated on his being elected to a seat on the San Fernando Borough Council.

3. **Correspondence**:—Letters from Messrs. F. J. Pound and T. I. Potter on the subject of Remi Fibre were read.

4. **Election to Membership**:—Messrs. M. P. Rogers and Oliver McLean were elected to membership.

5. **Topics of General Interest to Agriculture**:—(1) Mr. Dasent mentioned that the Government was contemplating getting an expert who would investigate conditions and endeavour to introduce disease resistant type

of cocoa, which would also be a heavy bearer, and be especially resistant to witchbroom infection.

(2) Mr. Prevatt stated that his property at Mayaro was immune from witchbroom infection, and that the trees were produing satisfactorily.

(3) **Ground Provision and Fruit Depot at San Fernando**:—A committeee comprising the following: Messrs. Dasent, Augustus, Richards, Partap, Rev. Errey, Rev. Father Maingot and Mrs. Sinkia was formed to go into the matter fully, in devising ways and means to have have same established.

6. **General Business**:—Mr. Lucky's motion was passed, and rule 4 was amended to read as follows: "Subscription shall be 60¢ per annum, payable in advance in January of each year, and any member failing to pay his subscription before the 30th June shall forfeit all rights and privileges until such time as he or she pays up the yearly subscription of 60¢. Members shall have the privilege of introducing one visitor at any ordinary general meeting."

This rule is to take effect from the 1st January, 1937, and must be forwarded to Mr. Potter, Secretary of the Parent Body.

Sgd. J. H. PARTAP,
Acting Secretary.

SIPARIA-ERIN.

The regular monthly meeting of the Siparia-Erin District Agricultural Society took the form of an Educational Outing to Mayaro on Sunday, 26th July, 1936, when the members visited the vineyard of Mr. Clifford Bullen, the Chief Road Overseer of Mayaro.

1. **Present**:—Mr. Harold Fahey, Vice-President, Mr. W. C. Sookermany, Secretary; Mr. Alfred Peña, Agricultural Adviser; Messrs. W. E. Henry, James Baldwin, Cecil Anderson, A. Williamson, Isadore Francis, D. Granger, Leo Tousaint, M. Simon, S. Ramchitar, R. Johnson, L. H. Dookeran, Pantin Legia, Frank Seupersad, Paul Saney, Louis Cotton, R. Ambrose, Robert Boldon, H. Murray, C. Ballack, Cecil C. Webber, Lennard Murray, Sugdass, Boodhu, and Jules Anderson.

Mr. Bullen gave a very instructive and interesting

lecture on the cultivation of the Grape Vine, and invited questions from the visitors. Mr. Fahey and Mr. Webber were interested in the yield per annum, and in the quality of the manure used for the cultivation of the vine. Mr. Bullen said that a single vine sometimes produced more than 300 bunches, and that he used pen manure, but only sparingly.

The visitors were taken through the cultivation, and shown the different vines—most of them laden with grapes, Mr. Bullen explaining meanwhile, or giving demonstrations.

Mr. Fahey thanked Mr. Bullen for his kindness in allowing the visitors to examine the grape cultivation. His address to them, he said was very instructive and interesting. He was sure that many of the visitors would soon take to the cultivation of grapes, but he was not quite certain whether they would be as successful as Mr. Bullen: the cultivation, he said was twice as wonderful as anything the visitors had expected. Mr. Webber also joined in expressing thanks to Mr. Bullen for the courtesy extended, and the care shown.

Refreshments were then served, after which the visitors repaired to the Lagon Doux Coconut Oil Factory, where they were received by the Manager, Mr. Theodore Tang, who showed them around, and explained to them the working of the factory.

After a sea bath, visits to the Ortoire Ferry and other places of interest, the visitors left for Erin, at about four o'clock in the afternoon.

SIPARIA-ERIN.

The regular monthly meeting of the Siparia-Erin District Agricultural Society was held on the 27th August, 1936, at 4.30 p.m., at the residence of Mr. W. C. Sookermany, Quarry Settlement.

Present:—Mr. A. J. Bernard, President, in the Chair; Messrs. H. Fahey, Vice-President; C. C. Webber, M. D. Granger, Jas. Baldwin, H. L. Dookeran, H. D. Persad, J. A. Rajkumar, Subnaik, Pantin Legia, Hosein Baksh, R. D. Singh, J. Peter, A. E. Bynoe, and W. C. Sookermany, Hon Secretary.

Minutes:—On the motion of Mr. Webber, seconded by Mr. Rajkumar, the minutes were adopted as correct.

Mr. Webber said he was very pleased to see the grape vine cultivation of Mr. Bullen, and, in order to record appreciation of the facilities granted to the Society, he begged to move that the Secretary be directed to write Mr. Bullen thanking him for his courtesy, and also a similar letter to Mr. Tang of the Coconut Oil factory.

Mr. Fahey seconded this and it was agreed to.

Mr. Sookermany then read a bill in which the Railway was asking for payment of the freight on the transport of the Holstein bull loaned to the Society. He said that he thought the bull would have been shipped on service to the various parts of the colony, as it was a benefit to the peasants. The District Societies are out to do good, he said, in some form, but they had no funds. He hoped that, in future, Government would see its way to assist in the cost of transport.

Mr. Fahey said they had asked for the bull, and they must pay the bill.

The Secretary was directed to pay the bill.

Application for the use of the Siparia Court House was deferred.

Tonca Beans:—Mr. Harold Fahey said at the last meeting of the Parent Society, Mr. Geo. F. Huggins brought forward a resolution asking that the exportation of tonca beans to other countries as seeds for propagation be restricted. It was unanimously adopted at that meeting, and he was now asking that this Society also record its adoption. It was unanimously agreed upon.

Mr. Fahey then read a paper on "Cacao and Grape Fruit Problems."

Members Proposed for Election:—Messrs. Soogdeo Maharaj, Claudin Niamath, and Louis Duboulet were proposed as members.

After a vote of thanks accorded to Mr. Fahey for his paper, the meeting terminated.

Sgd. W. G. SOOKERMANY,
Hon. Secretary.

SAN JUAN-SANTA CRUZ.

The regular monthly meeting of the San Juan-Santa Cruz Society was held on Thursday, 27th August, 1936, at 7.30 p.m. at the San Juan C.M. school building.

1. **Present**:—Messrs. J. C. Anthony, President, in the Chair; F. Ferreiree, T. Ferreiree, A. Lewis, Sebastien, F. Marin, Moh Haniff, Sadarath, Mohan Gobin, Sammy Lowtan, Mahabir, Deonath Maharaj, Jagdeo Ramphary, Khelawan Singh, and Bene Madhosingh, Hon. Secretary.

2. **Business arising out of Minutes**:—The President promised to interview the Secretary, Tacarigua Agricultural Society to join us, in an outing to be planned, which may either be to the Imperial College of Tropical Agriculture or to Five Rivers Estate, Arouca.

3. **Correspondence**:—Letters were received from A. V. Stollmeyer and M. Sellier (for T. I. Potter Secretary of Parent Body) regretting their inability to attend the lecture to be delivered by Dr. H. V. Metivier, O.B.E., Manager of Government Farm, which was fixed 25th August, 1936, at the school room.

4. **Registration**:—It was proposed to register the Society under the Friendly Society's Ordinance. Further consideration of this matter was postponed to next meeting.

5. **Agricultural Credit Society**:—The President promised to see Mr. C. M. D. Roach, Agricultural Adviser of the County and to discuss the organization of an Agricultural Credit Society and to report at next meeting.

6. **Elections**:—The following members were elected: Mr. Thomas Ferreiree, S. Marin, Alexander Lewis.

7. **Complaint of Butterfly Pest**:—A complaint was received from Khelawan Singh, a member of the above Society and a gardener at Barataria, saying that his water cress is being atttacked by a form of pest which he was unable to control. A species of butterfly is seen flying over the cress, lays eggs thereon which hatch out in about three or four days, and the worm or caterpillar eats everything leaving the bare stalk.

It was decided to write Mr. A. Pickles, Entomologist of the Imperial College of Tropical Agriculture, and the Department of Agriculture for his help in controlling this pest.

Apologies were received from Messrs. N. E. Ramcharran, Ajodhar Maharaj, S. M. Hosein, and H. Julien, regretting their inability to attend.

Sgd. BENE MADHOSINGH, Hon. Secretary.

SAN JUAN-SANTA CRUZ.

The San Juan Santa Cruz Agricultural Society was established on the 25th October, 1934, at a meeting held at the San Juan C.M. school building at which over fifty persons were present.

The Society started with a bonafide membership of 27, and at the end of July, 1936, the number had increased to 43.

Interest in scientific Agriculture has been growing steadily among its members, and the co-operative spirit is growing daily too.

Several lectures on Building Construction were delivered to the Society by the Agricultural Adviser of the County, Mr. J. C. Anthony.

Captain H. V. Metivier, B.Sc., M.R.C.V.S., Government Veterinary Surgeon and Manager of Government Farm spoke on the "Cow, its care and diseases;" Mr. Arnold Rajnath followed with a paper on the "Water Cress and tis culture;" and Mr. A. Pickles, Entomologist of the Imperial College of Tropical Agriculture and Department of Agriculture spoke on "Insect Pests and their Control." At this lecture the Hon. Director of Agriculture and the Assistant Director of Agriculture were present, and the meeting was presided over by Mr. H. E. Rapsey, a member of the Committee of Management of the Parent Society and one of the Directors of the Aranguez Estates Ltd., who donated to the Society a Spraying outfit.

A certain number of the members of the Society have been selected to try out the culture of Cauliflower, and the Assistant Director of Agriculture has promised to supply the seeds.

Sgd. BENE MADHOSINGH,
Hon. Secretary.

ORTOIRE.

The regular monthly meeting of the Ortoire District Agricultural Society was held on the 17th September, 1936, at the Elswick C.M. School.

Present:—Mr. Leo Ragbir (Chairman), Miss Edith Harewood, Messrs. A. M. Khan, J. H. Johnson, Tejbally-singh, L. F. Seukaran, N. E. Nancoo, Dookhansing Rampessad Maharaj, R. Ramkenysingh, Jas. Weekes, E. Sohan Dass, Basso Meeah, Soorjoo, Michael Ghany, (Inspector of Witchbroom), L. Boodhansingh (Acting Adviser) and Rev. H. Ramcharan (Secretary) and several other visitors.

Mr. L. Gibbon was absent on account of pressing duties. The minutes of the meeting held on the 16th July last were read and unanimously adopted.

Arising from the minutes were two items viz:—

(1) Developments made in the Tonca Bean Nurseries.

(2) What is the opinion of members regarding the planting of Fruit?

The Chairman gave a brief report of the result of the Tonca Bean Nurseries planted by him, and urged the members to take due notice of what he said in making their nurseries and in seed selection.

Rev. H. Ramcharan, the Secretary asked the members to join together and submit a small order for the purchase of nursery-plants from the Northern District where a limited supply could be secured.

The decision on Fruit Planting was postponed, as the members were eager to hear about this from the Agricultural Adviser, who came duly prepared with his paper on Food Stuffs and Fruit Rearing.

There was only one letter received and this was from the Parent Society with regard to the holding of a Live Stock Exhibition on Friday, Saturday and Sunday, the 16th, 17th and 18th October, in the holding of which the members are asked to co-operate.

They did not show any interest, as there are not many stock raisers around this District.

Our delegate, Mr. Ragbir, was then asked to report the gist of the last meeting of the Parent Society.

He mentoined that Mr. Alan Pickles gave an address and spoke on the Insect Pests in Bananas, Citrus Fruits and other plants and said that the Agricultural Society is devising some means to destroy these enemies and is issuing booklets for distribution. He also mentioned the two pests most prevalent, namely "The Scale Insect" in oranges and "Thrips" on Cocoa, and showed that thrips cause more destruction among the cocoa trees than even the witchbroom disease. Surinam was quoted as an example. He also quoted a few hints quoted from Mr. Pickles on such pests, and asked the members to locate the home of such pests of the Black Bees or Pegong, which destroy our Cocoa oranges year after year.

The Secretary brought up the matter of some members who have not received the Cocoa Subsidy grants and this was discussed at length. The Chairman advised them to keep waiting, as the Government will not withhold the necessary financial aid, if their cocoa bills are submitted in a regular manner and are in order.

The Agricultural Adviser, Mr. T. Boodansingh, was asked to deliver his address on the necessity for growing foodstuffs and other fruit plants on the uncultivated spots on their cocoa cultivation. He read from the statistics showing how much fruit could be utilised for home consumption instead of flour and other imported foodstuffs. He also impressed on the members the necessity for local food production, and gave some practical examples showing how a vegetable garden can serve as a "self help" factor in a man's life.

The Chairman complimented the speaker on his paper, and urged the members to follow up the useful hints so strongly recommended by the Adviser.

The meeting was then brought to a close.

HENRY RAMCHARAN,
Hon. Secretary.

SIPARIA-ERIN.

The regular monthly meeting of the Siparia-Erin

District Agricultural Society was held on the 24th September, 1936, at 4.30 p.m. at the Los Bajos Government School house, presided over by Mr. A. J. Bernard, Senior Assistant Warden, of the county, with whom there were also present, Messrs. R. G. Thomasos, C. C. Webber, A. Peña, J. A. Rajkumar, Isadore Francis, H. Warner, Subnaik, Cecil Andrew, Jas. Baldwin, J. Peter, Romain Ambrose, and A. R. Bynoe, Miss Carmelita Monegere and Mr. W. C. Sookermany, Hon. Secretary.

Excuses for their absence were received from Messrs. H. Fahey, M. D. Granger, and Jos. Seedansingh. On a motion made by Mr. Sookermany, Messrs. Claudius Niamath, Soogdeo Maharaj and Lewis Douboulet were duly elected to membership of this Society.

On a motion made by Mr. Rajkumar seconded by Mr. Webber, the minutes of the previous meeting were confirmed.

Mr. A. Peña, Agricultural Adviser, announced that he had been asked by the Hon. the Director of Agriculture to inform members and others interested that the "Live Stock Exhibition" is fixed for the 16th, 17th and 18th proximo at the Race Stand and all who intend to send in exhibits will have to pay only half price for the outward trip and return free.

The Secretary also stated that he had received a letter from Mr. Potter and that the Rules, etc., will be sent in a day or two.

Resignation:—The Secretary read a letter from Mr. W. E. Henry, late Head Teacher of the Government School, expressing his regret at having to resign due to transfer to Arouca. Mr. W. C. Sookermany said, Mr. Henry had been a teacher at this school for over 19 years, and that his association with the people of these parts was a long one.

For over two years Mr. Henry had been a member of this Society and during all that time he extended many kindnesses to this Society in placing at our disposal the building as well as the furniture of the school.

We all know that after school hours a teacher needed rest and recreation but we found Mr. Henry at our service when we wanted him, and for these reasons I beg that I may be permitted to write him a letter expressing our thanks, and at the same time to welcome Mr. Warner, and to nominate him as a member.

Mr. C. C. Webber said he also desired to join with Mr. Sookermany in the sentiments expressed. He regretted very much the removal of Mr. Henry, but, on the other hand, he has gone on promotion.

The Chairman said it is very encouraging to find teachers taking an active and lively interest in agriculture.

Resolution:—Mr. Rajkumar at this stage brought up a motion that this Society approach Government asking them to improve certain Crown Traces in this district by putting pitch, gravel or corduroy on them. He said his own experience had taught him that for a peasant proprietor to receive any benefits from his holdings he had to live thereon. The traces were usually in bad condition, and sometimes were impassable. He had purchased a parcel of forest land; he appealed to the Wardens from time to time, and they had cleared up a great deal of the place. But what was troubling him at the moment was, that, in the wet season, the traces were bad. Another difficulty was in the case of sickness and death, he could not get in or out of his house. To be resident on one of these Crown Traces and to practice agriculture successfully, something must be done to improve the traces.

Mr. Bernard said he was very interested in Crown Traces, but he was afraid the difficulty was insufficiency of funds. He had under his charge 198 miles of Crown Traces in the Siparia-Erin districts and it was almost impossible for Government to improve traces as proprietors would like. Faced with such a large mileage of traces, Government had not the funds adequate for the purpose at this time.

At this stage the Chairman suggested that the motion be amended to include the words "with a view to encouraging proprietors to live on their lands."

Mr. R. G. Thomson seconded the motion for the purpose of discussion.

Mr. Cecil Webber said he was not prepared to support the motion as it then stood. He had heard it mentioned that one of the reasons for the motion was that there should be a "local Road Board" in the district. I am not prepared to support it, unless I am quite sure that it is not really the object. I have been approached by certain people who are keen on forming a "local

Road Board" in the district. We might be told later on there is a demand for a Local Board for the simple reason that the Agricultural Society has been backing this. If I am sure that is not one of the reasons at the back of this motion, and that it is solely for the purpose of encouraging peasant proprietors and assisting them in getting out their produce to the market, it would get my support.

Mr. Thomson said: "That is the reason I am sure."

Mr. Peña said that while it must be admitted that there was still much to be desired with regard to improving those traces, Government has certainly put in an enormous lot of work during the past five years.

Mr. Ambrose supporting the resolution said, he too had been suffering from the bad condition of a trace leading to his lands at Los Charos. Mr. Webber at this stage, moved the amendment to the original resolution: "That the Government be asked to increase the money allocated for the improvement of Crown Traces in the Siparia-Erin District with a view to encouraging peasant proprietors to live on their holdings and to assist them in getting out their produce to the market."

The amendment was seconded by Mr. R. G. Thomasos, after which it was unanimously adopted.

The meeting then ended.

W. C. SOOKERMANY,
Hon. Secretary.

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DESTINATION OF PRINCIPAL PRODUCE EXPORTED.

The following Table shows the destination of the principal Produce exported from the Colony during the month of August, 1936.

DESTINATION.	Sugar	Molasses	Cocoa	Copra	Coconuts	Coconut Oil	Coffee	Rubber (raw)	Bitters	Rum	ASPHALT			MINERAL OIL AND PRODUCTS						FRUIT				Bananas	LIME JUICE AND LIME OIL				HONEY	Tonca Bean
											Dried	Crude	Cement	Fuel Oil	Kerosene	Gasolene	Road Oil	Lubr Oil	Crude Oil	Oranges *C—Crates †N—No.	Grape Fruit *C—Crates †N—No.	Grape Fruit Juice	Limes		Raw	Concentrated	Distilled	Hand Pressed	Lbs. or Galls.	Local
	Lbs.	Gals	Lbs.	Lbs.	No.	Gals.	Lbs.	Lbs.	Gals.	Gals.	Tons.	Tons	Tons crude-cement	Gals.	Gals.	Gals.	Gals.	Gals.	Gals.			Gals.	Brls.	Bunches	Gals.	Gals.	Lbs.	Lbs.		Lbs.
United Kingdom	3,366,384	...	169,300	...	...	...	...	17,236	1	...	1,775	Nil	78= 75	12,197,076	...	9,933,036	...	...	2,128,490	...	...	340	58	—	Nil	—	...	...	Nil	..
Canada	12,068,560	6,425	100,000	...	155,100	...	94,260	2,251	24	20	25	...	...	...	...	...	...	...	—	...	...	1,362	33	260	...	...	....	....	...	...
Germany	...	...	50,000	...	26,625	...	...	...	408	...	100	...	...	...	...	...	...	...	...	...	...	...	...	21,264	...	..	...	...	...	...
Holland	...	..	69,300	....	....	....	....	....	....	....	695	...	6=5	...	354,249	...	...		...	...	...	...	...	...	...	...	...	...	...	...
Norway	....	...	....	....	....	....	..	....	....	....	....	....	...	2,428,069	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	..
Egypt	....	....	....	....	....	....	....	....	24	...	....	....	....	—	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Sweden	....	....	20,000	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	..	1,866	89	....	5,713
U. S. America	....	....	202,352	....	207,350	....	....	....	....	76	24	....	....	....	....	....	....	....	....	....	....	....	150	....	....	....	....	....	....	....
U. of S. Africa	....	....	....	....	....	....	....	....	....	....	....	-	....	....	....	....	....	....	....	....	....	....	....	....	160	....	....	....	....	....
France	....	..	....	....	2,000	....	....	....	....	—	200		....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Colombia	....	.	....	302,400	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
British Guiana	....	....	..	....	....	....	....	....	31	4	....	...	67=69	129,106	38,663	61,392	2,500	....	....	N.= 50	....	....	....	....	....	....	....	....	....	....
French Guiana	....	....	....	....	....	....	....	....	....	....	....	....	....	1.300	4,467	9,108	....	....	....	....	....	3	....	....	....	....	....	....	....	....
Dutch Guiana	....	....	....	....	....	....	....	....	....	....	....	....	....	3,533	18,698	10,713	....	176	....	....	....	....	....	....	....	....	....	....	....	....
Bermuda	....	....	....	....	....	40	....	....	....	....	....	....	....	78,454	—	....	2,200	....	....	.	....	....	35	....	....	....	....	....	....	....
British W. Indies	....	....	4,000	....	....	....	19,310	....	62	....	....	....	284=317	2,288,974	171,887	761,575	54,891	8	....	N.=11,750	....	120	....	....	6,378	....	....	....	....	....
French W. Indies	....	....	....	....	....	....	....	....	....	....	....	....	....	5,953	28,684	164,196	22,035	—	....	....	....	....	....	....	....	....	....	....	....	....
Dutch W. Indies	....	....	....	....	....	....	....	....	20	14	....	....	....	....	....	981,037	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Canary Islands	....	....	....	....	....	....	....	....	....	....	....	....	....	2,811,934	—	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
American W. Indies	....	....	....	....	....	....	....	....	....	20	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Venezuela	....	....	....	....	....	....	....	....	....	2	....	....	....	168	....	2,200	....	....	....	....	....	....	....	....	....	....	....	....	....	....
India	....	....	....	....	....	....	....	....	22	....	....	....	....	....	—	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Austria	....	....	....	....	....	....	....	....	9	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Hungary	....	....	....	....	....	....	....	....	3	....	—	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Brazil	....	....	....	....	....	....	....	....	....	6	49	....	103= 98	....	—	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Bunkers	..	....	....	....	....	....	....	....	....	....	....	..	..	7,884,848	....	448	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Ships' Stores	...	....	....	....	....	....	....	....	6	48	....	....	....	....	85	428	....	....	....	....	—	....	....	....	....	....	....	....	....	....
Unknown	..	....	....	....	....	....	....	....	....	....	....	....	....	2,111,302	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Totals ...	15,434,944	6,425	614,952	302,400	391,075	40	113,570	19,487	610	190	2,868	Nil	538 =564	29,940,717	616.733	11,924,133	81,626	184	2,128,490	*C. Nil †N. 11,800	*C Nil †N Nil	1,825	276	21.524	6,538	Nil	1,866	89	Nil	5,713

NOTE: In addition to the above, the following exports of "Foreign Cocoa" and Foreign Tonca Beans were also recorded during the month:

Foreign Cocoa: 99,200 lbs. to the United Kingdom; 59,800 lbs. to Canada; 60,000 lbs. to Holland; 512,750 lbs. to the United States of America; 15,400 lbs. to France:= Total 747,150 lbs.

Foreign Tonca Beans: 124,008 lbs. to the United States of America.

DESTINATION OF PRINCIPAL PRODUCE EXPORTED.

The following Table shows the destination of the principal Produce exported from the Colony during the month of September, 1935.

DESTINATION.	Sugar	Molasses	Cocoa	Copra	Coconuts	Coconut Oil	Coffee	Rubber (raw)	Bitters Liquid	Rum	ASPHALT			MINERAL OIL AND PRODUCTS						FRUIT				LIME JUICE AND LIME OIL				HONEY	Tonca Bean
											Dried	Crude	Cement	Fuel Oil	Kerosene	Gasolene	Road Oil	Lubr Oil	Crude Oil	Oranges *C—Crates †N—No.	Grape Fruit *C Crates †N No.	Grape Fruit Juice	Limes	Bananas	Raw	Concentrated	Distilled	Hand Pressed	Lbs.	Local
	Lbs.	Gals	Lbs.	Lbs.	No.	Gals.	Lbs.	Lbs.	Gals.	Gals.	Tons.	Tons	Tons crude-cement	Gals.	Gals.	Gals.	Gals.	Gals.	Gals.			Gals.	Brls.	Bunches	Gals.	Gals.	Lbs.	Lbs.		Lbs.
United Kingdom	...	1,250	11,424	...	124,000	...	...	23,526	...	1,026	2,050	....	11 = 10	3,847,819	....	5,356,801	...	....	1,106,665	...	....	-	26	...	Nil	...	3,732	....	3,170	...
Canada	3,360	1,000	30,000	....	114,400	....	54,800	....	123	52	...	..	...	....	...	....	....	....	-	....	....	....	..	....	....	....	....	....	....	....
Australia	...	...	...	....	...	..	....	....	.	--	100	..	102=100	....	..	....	....	....	-	....	....	....	....	....	....	....	210	....	....	....
New Zealand	...	...	4,704	....	...	..	....	....	....	.	25	....	24=25	...	...	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Denmark	..	....	...	....	...	....	....	.	265	26	..	..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Germany	....	..	321,500	....	10,000	..	....	—	....	....	305	....	....	—	....	..	....	....	....	....	....	.	....	15,031	....	....	....	....	....	....
Holland	....	....	59,400	....	....	..	....	..	....	2	650	....	..	..	....	..	....	....	....	....	....	....	....	....	....	....	..	....	....	....
Norway	....	....	10,000	....	....	....	....	....	12	....	....	....	.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	..
Danzig	....		....	....	..	....	....	....	..	....	98	-	..	....	....	....	....	....	....	....	....	....	....	..	....	....	....	....	....	....
Uraguay	....	.	.	....	....	....	....	....	25	....	....	....	33=30	....	....	..	..	....	.	....	....	....	-	....	....	....	..	....	....	....
U. S. America	....	678,560	656,000	....	380,820	....	....	....	....	42		1,100	891=800	..	....	....	....	....	.	....	....	....	181	..	....	....	875	....	....	....
France	....	....	19,600	....	....	....	....	....	53	.	.	....	....	.	....	.	....	....	....	....	....	....	....	..	....	....	....	....	....	....
Colombia	....	....	....	521,024	..	....	....	....	22	....	....	..	....	....	....	....	....	....	.	....	....	....	.	....	....	....	....	....	....	....
British Guiana	....	....	....	....	..	..	....	....	12	....	....	....	....	121,165	26,558	80,493	..	702	....	N. 48,350	....	....	.	....	....	....	-	....	....	....
French Guiana	....	....	..	—	....	—	....	..	....	..	.	....	..	1.300	7,686	4,559	..	....	....	—	..	....	....	....	....	....	....	....	....	....
Dutch Guiana	....	....	..	..	....	....	....	....	....	....	.	....	..	12,273	20.316	16,625	..	....	..	....	....	....	....	....	....	....	....	....	....	....
Bermuda	....	....	....	....	....	....	....	....	....	....	....	....	....	77,908	....	....	....	-	....	....	....	....	....	....	....	....	....	....	....	....
British W. Indies	....	....	....	....	—	90	2,610	....	2	....	....	....	10=10	894,777	28,142	277,200	47,863	....	....	N. 54,000	..	6			....	....	....	....	....	....
French W. Indies	....	....	....	....	....	....	....	....	....	....	....	....	....	867	120,177	590,645	....	....	....	....	..	....	....	....	....	....	....	....	....	....
Dutch W. Indies	....	....	....	....	....	....	....	....	....	....	....	....	....	....	194,681	1,200,379	....	..	....	....	....	....	....	....	....	....	....	....	....	....
Canary Islands	....	....	....	....	....	....	....	....	....	....	....	....	....	2,788,336	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Senegal	....	....	....	....	....	....	....	....	....	....	....	....	....	2,258,805	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Venezuela	....	....	....	....	....	....	....	....	12	....	....	....	....	2,432	1,260	2,242	....	....	....	....	....	37	....	....	....	....	....	....	....	....
Argentine	....	....	28,600	....	....	....	....	....	128	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Cape Verde Islands	....	....	....	....	....	....	....	....	....	....	....	....	....	3,146,834	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Portugal	....	....	....	....	....	....	....	....	....	....	....	-	....	2,782,907	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Gold Coast		....	....	....	....	....	....	....	....	....	....	....	....	1,227,220	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Belgium	....	....	....	....	....	....	....	....	....	....	20	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Bunkers	....	....	....	....	....	....	....	....	....	....	....	....	....	6,507,551	....	343	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Ships' Stores	....	....	....	....	....	....	100	....	1	87	....	....	....	84	33	376	220	....	....	....	....	....	....	....	....	....	....	....	....	....
Straits Settlements	....	....	....	....	....	....	....	....	....	....	52	....	....	....	..	..	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Sierra Leone	....	....	....	....	....	....	....	....	....	2	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Bahamas	....	....	....	....	....	....	....	....	4	....	....	....	....	....	....	176,188	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Colon C.Z.	....	....	....	....	....	....	....	....	45	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Peru	....	....	....	....	....	....	....	....	50	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Japan	....	....	....	....	....	....	....	....	33	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Haiti	....	....	....	....	....	....	....	....	16	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
India	....	....	....	....	....	....	....	....	51	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Totals	3,360	680,810	1,141,228	521,024	629,220	90	57,510	23,526	854	1,237	3,300	1,100	1071=975	23,670,278	398.853	7,705,851	48,083	702	1,106,665	°C. Nil †N. 102,350	°C Nil †N Nil	43	207	15.031	Nil	Nil	4,817	Nil	3.170	Nil

NOTE: In addition to the above, the following "Foreign Cocoa" and "Foreign Tonca Bean" exports were also recorded during the month:

Foreign Cocoa: 242,200 lbs. to the United Kingdom; 15,000 lbs. to Canada; 5,940 lbs. to Denmark; 121,978 lbs. to Germany; 49,060 lbs. to Holland; 718,695 lbs. to the United States of America:= Total 1,152,873 lbs.

Foreign Tonca Beans: 188,584 lbs. to the United States of America.

THE VALUE OF AN ANIMAL LIVE STOCK EXHIBITION.

A paper read at the General Meeting of the Agricultural Society, held on 15th October, 1936, by Dr. Joseph Lionel Shannon, D.V.M., Assistant Officer in Charge of the Government Farm.

In an agricultural colony like Trinidad and Tobago, animal husbandry has net yet received the amount of attention given it in all progressive communities where the close connection between agriculture and stock rearing is fully appreciated.

The holding of an annual exhibition is absolutely indispensable to progress in the breeding of all classes of live stock. In every enlightened agricultural country of the world, stock shows are looked forward to as most important and interesting events occurring each year in the life of animal husbandmen. Governments and railroad companies give every assistance and encouragement, to the extent in many countries of free transportation of livestock, to and from shows; it being realised that the establishment of a flourishing live stock industry ensures a prosperous trade in the transportation of market stock.

In Brazil for instance, animals intended for the improvement of livestock are admitted into the country duty free, and are provided with free food and transportation to and from shows. Our Government has consented to free transportation of animals from Tobago, which are to be shown at the Agricultural Society's Livestock Exhibition to be held in Port-of-Spain on October 30th, and 31st, and November 1st, it benig realised that encouragement of animal husbandry under the favourable conditions in Tobago will undoubtedly lead to an improvement in the quality and number of animals brought over to Trinidad by the Government Coastal steamers. The Trinidad Government Railway is also allowing a concession to exhibitors to the extent of half a single fare with free return.

It is perhaps unnecessary to remind members of the Agricultural Society of Trinidad and Tobago of the in-

dispensability to British Agriculture of such exhibitions as those held by the Royal Agricultural Society at Islington and elsewhere, the Highland Agricultural Society in Scotland, the Olympic and Richmond Horse Shows in England, and the Dublin Horse Show in Ireland.

English dog lovers would smile at the suggestion that dog shows should no longer be held annually. Poultry fanciers would be equally amused if approached with a proposal to convert the Crystal Palace Show from an annual event to a spasmodic affair to be held at intervals of five or six years.

What is true of Great Britain and Ireland is equally true of the magnificent live stock exhibitions held annually at Toronto and elsewhere in Canada.

Members of this Society would share my enthusiasm, and it would be unnecessary for me to read this paper today, if they had visited with me, the National Horse Show at Madison Square Gardens in New York City, the National Dairy Show in Chicago, the State Fairs at Tenessee, Kentucky and Iowa; and finally for twelve days and nights for four winters in succession, the International Live Stock Exposition at the Union Stock Yards in Chicago, in the shadow of the great packing houses, and had seen there the grand championship battles fought out in the show rings between the various state champions together with worthy representatives from Canada, England, France, Belgium, and Germany under judges of interntaional reputation from Canada, the Argentine, Smithfield, England, and Scotland.

To come a little nearer home, without going with me to Jamaica, one has only to peruse the pages of the journal of the Jamaica Agricultural Society to discover that in the month of April, 1936 there were slaughtered in Kingston and 13 parishes, a total of 2,771 cattle, all of which were bred and reared in Jamaica, since the importation of cattle for slaughtering is prohibited. This thriving livestock industry of Jamaica is greatly encouraged by the holding of a large number of livestock shows throughout the colony, culminating in an all-island agricultural show at Muir Park, May Pen, Clarendon. At this Show a special attraction is the exhibits of stud stock by the Department of Science and Agriculture. Jamaica might be regarded as the only British West Indian colony which has developed a flourishing

live stock industry. Here English sheep thrive by being shorn twice a year, hence the existence of a wool market in Kingston. The quality of Jamaica race horses and polo ponies is well known throughout the West Indies. There is besides, a thriving dairy industry including the manufacure of condensed milk. Properly cured and baled guinea grass hay is sold in the Kingston fodder stores. The cattle farms, called there "pens," return a satisfactory dividend under the system of guinea grass paddocks with beautiful Saman shade trees in plains called there "Guango."

The indigenous guinea grass of Tobago convinces an animal husbandman that what can be accomplished in Jamaica can with equal success be achieved in Trinidad and Tobago with the addition of Uba Cane to help out guinea grass during periods of drought. It should be quite possible to convert many unprofitable areas in Trinidad to the rearing of beef cattle under proper protection as is done in Jamaica. It should be possible to work in co-operation with Agricultural Advisers and district Agricultural Societies to organise community breeding, and district live stock shows, culminating in an annual exhibition and auction sale in Port-of-Spain or some convenient suburb, to establish the nucleus of a thriving livestock industry.

Lest it might be thought that what is possible in the holding of Shows in a large colony like Jamaica might prove impracticable in the smaller islands of Trinidad and Tobago, I will briefly outline what has been accomplished in a smaller island than Trinidad and Tobago which is only 21 miles x 14 miles with over one thousand (1,000) people to the square mile and where every inch of the land appears to be cultivated in sugar cane. On that little speck in the ocean, there will be held in December this year, the 86th, annual exhibition. In spite of hurricanes, wars, and rumours of wars, regardless of whether the period is one of depression or prosperity, whether or not sugar happens at the moment to be king; no excuse is allowed to interfere with the holding of their annual exhibition. The result is that the live-stock reared under the most unfavourably intensive conditions, in small back-yards, and grazed along the narrow roadsides, are considered to be equal if not superior to animals to be seen in any other West Indian island.

Poultry fanciers in Trindiad and Tobago would have been delighted, if they had visited with me the eightieth annual exhibition held in 1930 in that little island. In a permanent metal structure of the Dutch barn type, there were exhibited all the leading breeds of poultry, utility and fancy pigeons, to the number of seven hundred exhibits; a miniature Crystal Palace Show. The dogs at the Exhibition are declared by regular visitors at English shows, to be more comfortably benched than at many of the leading shows in the mother country. Worthy representatives of the various English breeds are to be seen; descendants of prize winners abroad, in many cases imported for stud purposes, by their enthusiastic owners at great expense. As is the case in every small and densely populated community where intensive methods become indispensable, the rearing of the heaviest milking type of dairy cattle and goats becomes the most important branch of animal husbandry, and this is reflected at the annual exhibitions held in that little island. In Trinidad and Tobago at the present time, there is a fairly large number of good dairy cattle and goats, and with the holding of annual exhibitions, a great improvement in quality would very soon be noticeable. The Agricultural Society's exhibition of livestock to be held on the last two days this month and the 1st November, should be regarded by prospective exhibitors as the beginning of a new era in local animal husbandry. The co-operation of stock owners is required to make this and every subsequent annual show a success. It is already apparent that in the dog section especially, prizes will have to be offered at future shows for a larger variety of breeds than this year's catalgoue offers prizes for; and it is only by showing what kind of dogs are popular in the island at present that improvements can be arranged for in the future. With annual Exhibitions of live-stock an accomplished fact, stock owners would be encouraged to take better care of the prospective mothers of next year's youngsters which are expected to win prizes, and stock owners would show healthy rivalry in the care of their animals from birth onwards.

The holding of an auction sale of animals which exhibitors might wish to sell, and over which cards may be placed on notification to the Secretary, should result in securing more satisfactory prices each year. The

fact that the auctioneer is possessed of many years local experience of livestock in general, and race horses in particular, is an advantage not to be lost sight of These auction sales at the annual livestock show, should in time be as much looked forward to by stock men as the annual auction sales at the Government Farm, where privately owned animals are not offered for sale.

In these days of awakening local interest in nutritional matters, it might serve a useful purpose, in conclusion, to mention how the Goat Society of the little neighbouring island previously referred to, made use of the advertising medium of their annual exhibitions for popularising the use of goats' milk. The many gallons of goats' milk yielded at the Show were donated to the Society to be used in making tea, which the visitors to the Show were invited to partake of, as guests of the Goat Society, at the offices of the Department of Agriculture, adjoining the show grounds at a function at which the prizes won by members of the Goat Society were distributed by the Governor. Many an old maid who had previously been loud in her condemnation of goats' milk in spite of the fact that she had never tasted it, became a convert to the use of tea made more delicious by the addition of goats' milk, and was finally persuaded for the first time in her life to drink a glassful of pure goats' milk, which she sipped suspiciously with puckered brow at first, and finally quaffed with great gusto and many expressions of surprise and appreciation, to become the proud possessor on the following day of a well bred dairy goat, and to discover in the future a new joy in life by partaking of the most delicious custard and ice cream, the like of which can only be made with goats' milk.

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THE
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"INSECT PESTS OF TRINIDAD CROPS, WITH SOME SUGGESTIONS FOR THEIR CONTROL."

A Paper read at the General Meeting of the Agricultural Society of Trinidad and Tobago on Thursday, 10th September, 1936.

By

Mr. ALAN PICKLES, Government Entomologist.

I am grateful for the opportunity of addressing you this afternoon, more particularly because a meeting of this Society, the foremost agricultural organisation of the colony, affords me an opportunity of speaking to so many of the leading agriculturists of our community. I sincerely hope that this talk may be but a prelude to meeting most of you, gentlemen, on your own estates, where it may be possible to deal in a more practical manner with the insects which form my subject to-day.

It is my wish this afternoon to mention not only what are known to be efficient means of dealing with insect outbreaks in this country, but also to mention briefly a few of the lines of investigation which are being followed and to invite your comments upon them.

During the last few years, there have been some fundamental changes in the agricultural industry of Trinidad. Among these may be mentioned the long continued cocoa depression and the rise of banana and citrus production to positions of importance. One result of these changes has been to raise certain insects which formerly were very minor pests, to similar positions of importance and their control now becomes an urgent matter. I welcome this opportunity of saying that an entomologist in Trinidad never has to begin his duties from first principles, since no insect has ever been too insignificant to attract the study and to inspire the pen of my predecessor in the Department of Agriculture, Mr. F. W. Urich, and that, no matter what the insect to be studied, reference may always be made to his writings for detailed information which represents the fruits of years of patient study.

Among the multitudinous obstacles with which the cocoa industry has had to contend in recent years, not

the least has been a serious increase in the severity and distribution of the attacks of the cocoa thrips. This pernicious insect, I fear, will be only too familiar to most of the cocoa planters present to need much description from me.

The adult thrips is a small black insect, little more than a millimetre in length. It is a winged insect and is able to move about an infested cocoa tree with considerable agility. The female thrips is able to produce viable eggs without the aid of a male; some fifty eggs are laid by each female, these developing into perfect insects after a period of about 20 days. The rate of increase of the pest under favourable conditions is accordingly very rapid. In the case of the thrips, the whole life history may be carried out on the cocoa tree: the eggs are laid in the leaves usually near a vein, the nymphs which hatch from them feed on the same leaf and, after passing through two resting stages, the adult is produced which now usually seeks a new and younger leaf on which to begin the cycle over again.

As a result of the feeding activities of the nymphs and adults, the affected leaves become discoloured and patches of dead tissue may appear in the leaves in severe cases. This in itself is not of great harm to the tree, but such damaged leaves are shed long before their normal useful life is over, resulting in an abnormal change of leaf and accompanied by a destructive shedding of young pods. Where thrips attacks are persistent and unchecked, a complete change of leaf may occur every few weeks, resulting in a general starvation of the plant and leading to a condition of "die-back" of young growth. In Surinam where thrips attacks have been most severe and persistent, this has caused wholesale death of cocoa trees, and some authorities hold that the collapse of the industry in that country, was due more to thrips than to witchbroom.

Fortunately, there are certain means of control at our disposal. The thrips is rather particular in its choice of food, young and tender leaves being much preferred to older and harder ones. In consequence some of its other host plants which change the foliage only once a year, are subject to attack only when the new leaves are being produced. It is possible by certain manurial

and cultural methods, to maintain cocoa trees in the condition least suitable for thrips attack. These methods are being investigated by soil chemists and agronomists in the colony.

I am more concerned, however, with the insecticidal attack upon the cocoa thrips, which appears to be very urgently required in certain areas at the present time. Some few planters have regularly sprayed their cocoa in order to control thrips and they claim that this is a profitable means of control. There is no doubt that spraying with Bordeaux mixture at the end of the dry season will protect the treated trees completely from thrips, so long as the same leaves remain on the trees. The repeated spraying which is necessary in the case of some pests is thus unnecessary in the case of cocoa thrips.

Now I am well aware that to advise a cocoa planter to spray his cocoa to destroy thrips is just about as tactful as to advise an unemployed ex-service man to take a holiday on the Riviera. Many planters, I am sure, would adopt spraying even if they could only be assured that the crop saved would pay for the treatment. We all hope that better times are in store for cocoa, and I should like each cocoa planter who is troubled by thrips to consider now, whether spraying might not at least be a possible means at his disposal. The cost of Bordeaux spraying amounts to $4.50 to $5.00 per acre, so that at present prices, little more than half a fanega of cocoa saved would pay the cost of spraying.

To my mind, however, $5.00 an acre is an unduly high cost for spray treatment, and it is my earnest desire to find means of reducing this cost. Some workers claim that spraying with milk of lime is just as effective as with complete Bordeaux; as this eliminates the most expensive ingredient, lime spraying, if effective, should make a substantial reduction in spraying cost. But the most expensive item in spraying is the transport of water, an expense which entirely precludes spraying on steep hills or in areas remote from a water supply. For this reason, an effective insecticidal dust would be the most economical substance to employ for thrips control and I have experiments under way or projected for testing both the value of milk of lime and of dust applications.

Turning now to citrus, I am glad to be able to say that most of the pests which make citrus cultivation so expensive in most producing countries, are either absent or of relatively little importance in Trinidad. The Mediterranean Fruit Fly, the most dreaded scourge of fruit growing countries, is unknown here, and may it long remain so! I have often heard planters repine that there should be so many insect pests in Trinidad, but we are extremely fortunate in this regard as compared with most tropical countries.

While the Mediterranean Fruit Fly does not affect our citrus in this country, there are a few fruit-boring insects here which give a certain amount of trouble. Most of this injury is attributed to the black fruit fly of citrus, closely related to the worms which infest guavas. There are some authentic records of oranges and grape fruit injured by this insect, but when I investigated the trouble last season, I did not find a single specimen of it in over four thousand damaged fruits. Most of the damage attributed to fruit fly last year was really caused by a moth, which occurs in cocoa orange and sour orange, as well as in budded oranges and grape fruit.

This insect lays a single egg on the rind of the fruit; the caterpillar which hatches bores through the skin and, if it survives, feeds on the "rag" of the fruit. The vast majority of the insects, however, especially in grape fruit, are killed by the essential oil liberated as they bore through the rind. But when the puncture through the skin has once been made, that fruit has no longer any commercial value, whether the insect survives or not. As may be expected, the fruit begins to rot in the neighbourhood of the puncture and is frequently shed. Secondary infestation by minor fruit flies often takes ptace then. The loss to the grower consists, not only of the value of the fruit rendered unsaleable, but also in the expense of examining the fruit for signs of damage before shipment.

The total amount of damage in the colony from this source is not great, but we must prevent any increase of it. For this reason, I should like to urge citrus growers this season to report any occurrence of this damage immediately it is noticed, since much more field information of the pest is necessary.

Among the most widespread citrus pests in the island

are the scale insects, of which three main types are present here. In the first place we have the type represented by the Orange Snow Scale, which is found on the old wood of the tree, sometimes completely covering the bark of the trunk and branches with a white incrustation. This white deposit consists of the male scale insects which lie over, and largely conceal, the still more numerous female scales. A citrus tree is apparently able to support a surprisingly large number of these insects without any marked signs of suffering, but there is a limit beyond which injury becomes apparent. One of the first results of snow scale injury is the developement of numerous unsightly cracks in the bark of affected parts. In Queensland, this is said to be a condition predisposing to gummosis, though in Trinidad I have not seen reason as yet to connect the two particularly.

Of somewhat greater immediate importance are those brown and purple scales which occur on the green wood near the tips of the branches. Such scales usually include Clover's scale and purple scale. Their attack leads to a wilting and death of the new growth, culminating in a badly mis-shapen tree and a serious loss of crop.

The third type of scale attacks the leaves and fruits and is represented in Trinidad by the Florida Red Scale. This is an almost circular scale, dark red in colour. When abundant, it is the most destructive scale of all and the most difficult to eradicate.

The effect of moisture on scale is most interesting. These insects are found to reproduce most freely in a dry atmosphere, so that the greatest multiplication in Trinidad occurs during the dry season. Experiment shows that the reproductive rate decreases in conditions of high humidity and in addition, moist conditions of parasitic fungi which destroy the scales without harming the tree. This moisture effect is so marked that in Trinidad, with its high annual rainfall, scales can usually be brought under control by a judicious arrangement of windbreaks or by other usual means for minimising desication.

Unfortunately, a certain amount of land has been cleared for citrus without due regard to windbreaks and the scales I have mentioned may in such areas be very troublesome. Insecticidal control is frequently necessary during the period which must elapse before the wind-

breaks con be sufficiently established. The usual and most successful method of scale control is fumigation. With the present low incidence of scales in Trinidad, I hardly think that this method of control is likely to find favour with planters. A rather large amount of equipment is necessary—the trees have to be enclosed in a tent which is filled with prussic acid vapour, and demands skilled workmen to operate it. In these cases, I should recommend spraying as a control, for which purpose, resin wash or an oil emulsion may be used. Probably resin wash, a saponified mixture of resin and whale oil, is the more costly and is not an ordinary article of commerce, so that the user must make up his own supply.

There are a number of excellent proprietary oil emulsions on the market, which only require dilution with water for use. These retail at between one and two dollars per gallon of stock emulsion. Recently, I have made an emulsion of a locally produced Diesel oil. This gives excellent results against scale insects, is harmless to foliage and costs less than fifty cents per gallon to prepare. One gallon of the stock emulsion will make eighty gallons of spray. Particulars of these preparations are available to all who are interested.

Another widespread pest of citrus, which is probably of greater economic importance, is the rust mite. This, of course, is not strictly speaking an insect at all, being more nearly related to the spiders. The rust mite first attacks the leaves of the citrus tree, but the results of such attack are not serious. The leaves lose their usual lustre and become dull in appearance.

When the young fruits have set, they in turn are attacked and the mites rupture the oil vesicles in the rind, liberating the essential oil in them. This runs and oxidises on the surface, becoming dark brown or black in the process. The edible properties of the fruit are not affected, but the fruit becomes unsightly through the brown or black "tear drop" stains or the general russetting which follows the attack.

As in the case of scale insects, rust mite is more prevalent in dry and exposed areas. Insecticidal control is not difficult; the mite responds readily to oil sprays or to dusting with flowers of sulphur or colloidal sulphur. Probably the locally prodced "Mulsulphol" will prove

to be specific, as this product contains a large amount of sulphur which is liberated as a collidal precipitate on dilution with water. The important point is that spraying must be done early, while the mites are still on the leaves. If delayed until blossoms or young fruits appear, there is danger of causing shedding, while fully formed fruits, which can survive the spray or dust are usually already damaged.

Ants and bees are frequently most injurious to citrus and often present a difficult problem in control. I should like to emphasise the fact that there is only one really adequate way of dealing with these pests in the field and that is, to destroy the nests. All other known methods can be regarded only as palliatives and not remedies for the trouble.

The most troublesome bee of course, is the black stingless bee or "Pegong." This insect feeds within a circle of at least two miles radius from the nest, consequently the nest is often most difficult to locate. As often as not, the nest proves to be on the land of another proprietor or in dense *ratsraja*, adding to the difficulties of destruction. Some temporary remedy is therefore desirable in order to minimise the damage from bees pending location and destruction of the nest. Many planters have found that the Argentine Ant Poison formula of the U.S. Department of Agriculture is useful to kill Pegong when the nest cannot be found. This is a sweet syrup, poisoned by the addition of arsenic, and the syrup is painted on the bark as near as possible to the attacked portions of the tree.

With the exception of the parasol ants, most ants attacking citrus feed on sugar and their numbers may be reduced by the employment of suitable sweet poison baits. Again, I can only recommend the use of bait when the nest cannot be found immediately or when, from its situation, it cannot be destroyed without risk of injuring the tree. I am glad to say that I have been able to make a poison bait of this nature which is quite effective in the field and particularly in the household for the destruction of sugar-feeding ants. The bait is in the form of jelly which is smeared on slips of paper or wood and placed in the path of the ants, particularly near the nest. The poison contained in the bait is thallium sulphate, a poison

which has delayed action, so that an ant consuming it has time to return to the nest. Now there is a peculiar feeding habit amongst ants, known as *trophalaxis*, which means that the ants of one colony exchange partially digested food among themselves. In this way, one ant carrying poisoned food will distribute some of it among a large number of its fellows and far more will be killed than those which fed directly off the poisoned bait. In this way, ants may be kept in check for many weeks with one good application of poison.

The most important pest of bananas is the weeveil borer which is responsible for much damage to Gros Michels and particularly to plantains. Indeed, I believe that this pest is the greatest single factor limiting the cultivation of plantains in this colony. It is a big step towards the avoidance of weeveil damage if the cultivation can be established with borer-free planting material. This object can be attained by the proper treatment of the sucker used for planting. Whenever possible use suckers rather than "bullheads" for planting. First of all, strip off the outer layers of the "stem" that is, the leaf bases, paying particular attention to those which are dead or discoloured. Then, with a sharp knife, take a good thick layer off the whole surface of the bulb, leaving two eyes undamaged. So long as the bulb remaining has a diameter of about two inches, the sucker will grow well. Indeed, at River Estate, where Mr. O'Connor and I have an experiment on this matter, we have found that suckers trimmed in this way make distinctly better growth than those prepared in any other fashion. Finally, trim carefully along the junction between the leaf bases and the bulb. Suckers so prepared should be planted immediately; on no account should they be left overnight in the plantation without planting. Any suckers which have been bored should be destroyed; the holes can be seen easily while trimming is in progress.

Most labourers and drivers on your estates will declare that suckers so heavily trimmed will never grow, but experience shows that the treatment is no way harmful.

I see that the time allotted to me is now drawing to a close, although I feel that I have only touched the fringe of my subject. I hope, however, that what I have said has not been entirely devoid of interest to you. In

these days of keen and ever keener commercial competition, the war on agricultural pests becomes more and more important. It is my earnest wish to make this war in Trinidad more efficient and less costly, an aim which demands the closest co-operation with the growers. May I therefore in conclusion, ask you to let me know of all problems of insect pests as they arise, so that measures for control may be undertaken as some contribution to the elimination of these foes to agriculture.

SOME USEFUL INSECTICIDAL FORMULÆ IN COMMON USE.

1. **Bordeaux Mixture.**

Copper sulphate (bluestone)	..	..	4 lb.
Temper lime	..	..	4 lb.
Water	..	..	40 gallons.

Dissolve the copper sulphate in 4 gallons of water. In another container, slake the lime and when cold, strain it into a barrel and make up to 36 gallons with water. Then pour into the lime mixture the copper sulphate solution, stirring vigorously. Never mix strong lime with copper sulphate and do not use the lime barrel for dissolving the copper or *vice versa.*

Use: A valuable general fungicide. Used with considerable success to protect cocoa trees against thrips infection. For this purpose, trees liable to infestation should be sprayed at the end of the dry season. Young foliage should have hardened before spray is applied and it is essential that the under side of the leaves should be thoroughly covered with spray.

2. **Bordeaux Paste.**

A.	Copper sulphate	..	..	4 lb.
	Water	..	..	2 gallons.
B.	Temper lime	..	..	4 lb.
	Water	..	..	2 gallons.

Dissolve the copper sulphate and shake the lime in the amounts of water stated. Then mix together equal quantities of each ingredient, making up only enough for one day's use.

Use: An antiseptic dressing for wounds on trees, often used on citrus after cleaning up a gummosis lesion. Valuable as a repellent for beetles and other insects

attacking bark and wood. Early scars of cocoa beetle on young cocoa may be protected with this paste and its use is recommended for dressing citrus wounds caused by black bees.

3. **Argentine Ant Syrup.**

Granulated sugar ..	12 lb.
Water	11 pints
Tartaric acid ..	¼ oz.
Benzoate of soda ..	⅓ oz.
Sodium arsenite ..	¾ oz.
Hot Water	½ pint
Honey, strained ..	2 lb.

Combine sugar, 11 pints of water, tartaric acid and benzoate of soda; boil slowly for 30 minutes and allow to cool. Dissolve the sodium arsenite in ½ pint hot water and cool. Add the poison solution to the syrup and stir well; then add the honey and mix thoroughly. Caution: this preparation is highly poisonous.

Use: a useful poison for black bees on citrus, pending destruction of the nest. After treating the older wounds with Bordeaux paste, the bark surrounding them is painted with the syrup. Alternatively, the poison may be used to saturate a quantity of bran, which is tied in a small bag and hung in the infested trees, beneath a tin rain shedder.

4. **Resin Wash.**

Resin (finely powdered)	10 lb.
Caustic soda ..	3 lb.
Whale oil ..	1½ lb.

Dissolve the soda in 2 gallons of water and bring to the boil. Stir in the resin slowly while boiling. When the solution is dark and clear, add the whale oil and boil for a few minutes until the liquid will mix readily with cold water. Dilute to 40 gallons for use.

Use: A good general insecticide, of great adhesive power. May be used against pests of garden vegetables, especially of cabbages, which are difficult to wet with ordinary sprays. It is also of use as an adhesive in other spray mixtures, in which case, it should form about five per cent. of the final wash. Recommended for the control of citrus scale, for which purpose, however, it is perhaps a little expensive. In Queensland, this spray was found to be almost, if not quite, as effective as fumigation for the destruction of citrus scales.

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THE WEST INDIAN SEA ISLAND COTTON ASSOCIATION

ITS FORMATION AND WORK.

By C. C. Skeete, B.A.
Assistant Commissioner of Agriculture,
Honorary Secretary.

(Extract from "The Empire Cotton Growing Review" —July, 1936.)

I. AN HISTORICAL SKETCH OF THE FORMATION OF THE WEST INDIAN SEA ISLAND COTTON ASSOCIATION.

Continued from July "Proceedings"

The following is quoted from a preliminary report on this work issued by the Wood Industries Research Association: "Many attempts have been made to manufacture yarns from mixtures of Sea Island cotton and wool from which garments could be manufactured possessing the desirable warmth, the absorbent qualities of wool, and the 'lightness' and smooth handle of Sea Island cotton fabrics. The obstacle that has hitherto prevented the realization of this ideal is that ordinary wool imparts to the mixture fabric two of its most undesirable qualities—namely, liability to shrink on laundering and its prickly feel. The development by the Wool Industries Research Association of a process for rendering wool resistant to shrinkage *before* conversion into yarn has made a modified wool available for blending with Sea Island cotton to produce a mixture that can be converted into a homegeneous cotton-wool yarn. This modified wool not only does not shrink, but has lost its 'woolly' feel without losing either its warm handle or capacity to absorb moisture and perspiration." Further, it is claimed that new yarns obtained from blends of Sea Island cotton and wool, subjected to special treatment by the Wool Industries Research Association, will also be found valuable for the manufacture of light-weight dress materials and other fabrics for purposes where the warmth of wool

but the lightness of cotton and its resistance to felting during washings are required.

Other investigations have been conducted, involving much enquiry and experiment, in order to find other possible new uses for Sea Island cotton. A material containing Sea Island cotton was tried for use in airplane wings, but was eventually found unsuitable. Experiments, however, are being continued to find out whether it can be used in the materials from which parachutes are made. The possibility of using Sea Island cotton in the manufacture of sailcloth has also been carefully investigated. In general, the Advisory Committee has established close contact with firms who have shown interest and initiative in the manufacture and marketing of fabrics made from Sea Island Cotton.

(c) *Increase in Consumption of Sea Island Cotton*: The Advisory Committee have lost no opportunity for giving publicity to Sea Island cotton and the goods manufactured therefrom. As the result of discussion and co-operation with the publicity agent of Messrs. Austin Reed, Ltd., an extensive advertising programme was arranged and carried through. Messrs. Austin Reed, Ltd., staged window displays of Sea Island cotton goods in their Regent Street shop, and have from time to time advertised extensively in the leading illustrated papers. Further, by arrangement, the Secretary of State for the Colonies visited and inspected the display of Sea Island cotton goods at Messrs. Austin Reed's Regent Street establishment. Others interested in Sea Island cotton, and represenatives of the Press, were also invited to the display and to the luncheon afterwards given by Mr. Austin Reed, at which speeches were made by Sir Philip Cunliffe-Lister (now Lord Swindon) Mr. Austin Reed and others. Due publicity was given in the Press to the Secretary of State's visit. Further publicity has been given by the issue of special communiques to the Press, and by reference in the House of Commons to the steps being taken to promote the welfare of the Sea Island cotton industry. In addition, a broadcast talk on Sea Island cotton was given by Sir Algernon Aspinall.

The Advisory Committee has constantly kept in mind the holding of an exhibition of Sea Island cotton goods, but up to the present it has been considered that no good purpose would be likely to be served by an

exhibition, until a large and attractive range of goods was available. It was thought preferable to conserve resources which might be used to better advantage in this or other directions at a more appropriate time later on.

(ii) THE WORK OF THE ASSOCIATION IN THE WEST INDIES

At the time of the formation of the Association there were large stocks of Sea Island cotton lying unsold in the United Kingdom. It was considered necessary, therefore, that a policy of restriction of production should be adopted, and one of the most important functions of the Associstion has been the allocation of maximum amounts of cotton to be produced in the cotton-growing islands. The Association has had no means of enforcing restriction, but the policy has been adopted in all the islands, except Montserrat, where the excuse that cotton cultivation is the one and only industry of the inhabitants has been offered as an explanation for producing in excess of their quota. Fortunately, however, the rapid increase in consumption and removal of surplus stocks which took place in 1935 relieved any awkward situation that might have arisen by reason of Montserrat's failure to limit her production to the recommended quota. The position in 1936 is that the demand is likely to keep pace with production, but the Association has not abandoned the policy of "controlled production." At its third annual general meeting in January, 1936, production allocations were agreed upon for each island, and no island is expected to exceed its quota without first obtaining the sanction of the Association.

Measures aiming at the control of the export of cotton have also been recommended by the Association. It was considered that some degree of restriction in the export of cotton lint on consignment was necessary, and to this end legislation has been introduced in several islands limiting the total amount which may be exported on consignment. In view, however, of the changed market conditions the system of controlling the export of cotton on consignment has been modified. In order to avoid the accumulation of surplus stocks in the United Kingdom, a quota has been suggested for each island, fixing the amount of cotton which may remain unsold in the United Kingdom at any one time. Governments have been invited to enforce this recommendation by the introduction of legislation where necessary.

In addition to the advertising campaign conducted and encouraged by the Advisory Committee in the United Kingdom, the Association has taken advantage of the limited field for advertisement in the West Indies. Advertisement booths containing articles of clothing made from Sea Island cotton have been staged at more than one island in places which tourists and other visitors frequent. The Association has also invited the Governments of the British colonies in the Caribbean area to remove the duty on goods made from Sea Island cotton entering those colonies for a period of three years, so that these goods may be retailed at a lower price, and thus introduce to a wider range of purchasers the attractive qualities of Sea Island cotton goods.

The Cotton Conference held in Trinidad in 1933 was regarded as the first annual general meeting of the Association. Since that meeting two annual general meetings have been held, one in Montserrat, in November, 1934, and one in St. Vincent in January, 1936. Also, nine meetings of the Executive Committee have been held. At these meetings, in addition to the several subjects to which reference has already been made in this article, the Association has recommended for adoption in all the cotton-growing islands the system of supplying cottonseed for planting purposes through a single channel, namely the Agricultural Department, a system which has worked successfully in St. Vincent for several seasons. Matters relating to grading, baling and wrapping cotton have also received the attention of the Association, and recommendations aiming at the standardization of bales within practical limits have been made.

In addition preliminary steps have been taken towards the establishment of an entomological service for the study and, if possible, introduction of more effective cotton pest control measures, and towards the appointment of a market intelligence officer in the United Kingdom to furnish the growers and exporters of cotton with the much needed information concerning marketing conditions. The Association has guaranteed funds for both of these prospective services. From all the foregoing it will be seen that much time has been expended on the preparatory work for the incorporation of the Island and Central Associations.

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Description of Produce or Live Stock	Price	Name	Address

THE COLONY'S RAINFALL—AUGUST, 1936.

	August.		Jan.-Aug.	
	1936	1935	1936	1935
Royal Botanic Gardens	5.93	13.23	37.38	30.72
River Estate, Diego Martin ..	7.03	9.33	38.65	35.69
Government Stock Farm, St. Joseph	10.54	12.32	45.00	31.35
Imp. College of Trop. Agriculture	10.38	13.74	46.54	33.81
C. M. Carmona, Arima	15.61	18.34	64.51	49.19
Lewisville House, San Fernando ..	6.90	13.75	37.94	33.53
Usine Ste. Madeleine, San Fernando	10.67	14.54	42.92	34.56
Malgretout Estate, Princes Town ..	12.97	15.60	52.37	40.34
Grosvenor Estate, Sangre Grande ..	11.73	12.73	67.56	52.75
Perseverance Estate, Cedros .	3.35	9.38	36.00	32.00
Constabulary Station, Couva ..	10.95	5.49	42.95	23.38
Do. Rio Claro ..	11.76	16.80	58.65	54.50
Do. Toco ..	6.43	8.99	46.63	41.16
Do. Mayaro .	12.34	13.75	59.83	46.55
Do. Siparia ..	5.49	13.11	42.24	39.93
Hermitage Estate, Tobago ..	7.70	11.05	49.03	43.20
King's Bay, Tobago	4.83	6.90	44.11	42.40
Government Farm, Tobago	6.39	10.34	34.54	27.91
Kendal Estate, Tobago	6.62	13.26	49.19	46.04
Arena Reserve Plantation	10.77	10.50	58.40	42.04
Central Range Reserve Plantation .	12.02	14.08	67.57	54.09
Tamana Cedar Plantation	11.82	16.35	65.97	56.49
Southern Watershed Reserve Plan	6.20	9.04	39.60	32.09
Quinam Ridge	6.00	7.99	37.19	27.42
Brasso Tamana Reserve ..	12.87	23.71	75.88	63.93
McNair Ravine Sable Plantation	9.81	9.71	46.50	37.30
Valencia	13.77	18.50	67.92	56.94
Adivinanza Estate (Princes Town)	11.69	11.54	63.75	38.49
Palo Seco	4.16.	—.	30.33	—
T.L.L.—Morne L'Enfer	5.51	—	—	—

THE COLONY'S RAINFALL,— SEPTEMBER, 1936.

	September.		Jan.-Sept.	
	1936	1935	1936	1935
Royal Botanic Gardens	8.13	11.41	45.51	42.13
River Estate, Diego Martin ..	7.64	13.04	46.29	48.73
Government Stock Farm, St. Joseph	7.56	11.95	52.56	43.30
Imp. College of Trop. Agriculture	9.67	13.76	56.21	47.57
C. M. Carmona, Arima	12.76	15.67	77.27	64.86
Lewisville House, San Fernando ..	13.27	11.38	51.21	44.91
Usine Ste. Madeleine, San Fernando	12.80	11.86	55.72	46.42
Malgretoute Estate, Princes Town	10.92	11.83	63.29	52.17
Grosvenor Estate, Sangre Grande ..	12.31	16.27	79.87	69.02
Perseverance Estate, Cedros ..	5.89	3.18	41.89	35.18
Constabulary Station, Couva ..	9.45	11.18	52.40	34.56
Do. Rio Claro .	7.26	12.81	65.91	67.31
Do. Toco .	11.87	10.29	58.50	51.45
Do. Mayaro .	5.01	14.21	64.84	60.76
Do. Siparia ..	8.41	7.92	50.65	47.85
Hermitage Estate, Tobago ..	11.02	16.67	60.05	59.87
King's Bay, Tobago	6.48	15.22	50.59	57.62
Government Farm, Tobago ..	5.82	11.64	40.36	39.55
Kendal Estate, Tobago	6.38	17.82	55.57	63.86
Arena Reserve Plantation ..	11.04	19.19	69.44	61.23
Central Range Reserve Plantation	9.05	18.66	76.62	72.75
Tamana Cedar Plantation ..	14.04	20.18	80.01	76.67
Southern Watershed Reserve ..	6.70	6.46	46.30	38.55
Quinam Ridge	5.62	5.57	42.81	32.99
Brasso Tamana Reserve .. :	24.56	15.44	100.44	79.37
McNair Ravine Sable Plantation	7.96	16.17	54.46	53.47
Valencia	14.85	15.23	82.77	72.17
Adivinanza Estate (Princes Town)	8.87	13.59	72.62	52.08
Palo Seco	5.74	—	36.07	—
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By H. N. Ridley, M.A., Director of Agriculture, Straits Settlements.

(Reprinted, by permission of Director and Society, from Paper read before the Society).

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